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ORTHOGRAPHY OF ASAFŒTIDA.

BY ADOLPH W. MILLER, M. D., PH. D.

(*Read at the Pharmaceutical Meeting, January 19th.*)

The duplication of a single letter may seem to many to be a very trivial matter indeed, though when philosophically considered, it is found to be quite worthy of attention and earnest consideration. As is well known, the majority of civilized nations use the Latin language in their prescriptions, and for the purpose of expressing many scientific terms pertaining to medicine. In order, therefore, to guard against ambiguity, it becomes an object of considerable importance to preserve the purity of this tongue. If every nation, or perchance every individual, were to adopt a peculiar orthography, the value of Latin as a common scientific language would be utterly destroyed; thus depriving both physicians and pharmacists of this convenient international medium of communication.

A diversity of the above kind seems to be at present prevailing in reference to the spelling of the Latin noun *asafœtida*—the *stercus diaboli* of modern nations, the *cibus deorum* of the ancients. A semblance of authority is given to the *ss* in the word by its adoption into the British and United States Pharmacopœias; on the other hand, the "*Pharmacopæa Germanica*" and almost all the most accurate authors write it with only a single *s*. As the Germans are generally regarded as being in advance of all other nations in profound philological knowledge, it is fair to presume that they have just and logical grounds for employing this form. In addition to this, the text-book of the German empire is invested with a much higher authority than ours, as it is issued under the immediate supervision and with the sanction of the general government.

If we may credit the accounts of Murray, the word asafœtida seems

to have been introduced by the monks of the famous school of Salerno in the middle ages. It is not used by the Greek and Roman writers, so that it is searched for in vain in classical dictionaries. In order, therefore, to form an intelligent opinion on the subject, it becomes necessary to inquire into the derivation of the word, and also to note the preference shown by careful and competent writers for either of the two forms.

The term *asa* has been for ages applied to two different drugs, namely, *asa dulcis* (benzoin) and *asa fœtida*. The former seems to be used in Latin only with a single consonant, while the variation occurs in the latter. This apparent inconsistency is most probably to be accounted for by the name *asa dulcis* having become obsolete before the term *assa* came into vogue.

The origin of the word *asa* is veiled in so much obscurity, that different etymologists ascribe it to four entirely distinct sources. The first of these is the Latin word *laser* or *lasar*, which was applied to the juice of the plant *Laser pitium*. This was a medicine of great renown among the Romans, who knew it also as *Laser cyrenaicum*, or *Succus cyrenaicus*, and as *Silphium*. Many authors claim that laser was identical with asafœtida, though this is hardly probable, since Theophrastus, Aristophanes and Dioscorides assign to it a sweet and agreeable flavor. Worcester, Muspratt, and many other writers mention this derivation. The word *laser* is itself derived by some authors quoted by Flückiger from the Greek σίλφιον as follows: *silphi'*, *sirphi'*, *sirpe*, *lac serpitium*, *laserpitium*. The intermediate form *sirpe* is used by Plautus, B. C. 184. "Francis Gouldman's Dictionary," Cambridge, 1674, says: *Laser est decurtatum ex Laserpitio. Laser herba cujus succus primum dict. Lactir, quoniam manat in modum lactis.* The same author then quaintly defines it as being, "the loathsome liquor which issueth out of the stinking *laserpitium*, and is called of the Apothecaries *Asa fœtida*."

The second derivation is from the triliteral root *asa,* occurring in several oriental languages; thus, *aza*, in Persian, means mastic, *isû*, in Arabic, a remedy, and *asa* signifies healing or curing in both Hebrew and Arabic, being often used substantively for a physician. Webster, Hager, Dorvault, the Paris Medical Dictionary and others, favor this view. My esteemed friend, Dr. J. Thomas, a diligent student of comparative philology, and author of a medical and other dictionaries,

has, at my request, investigated the subject. His conclusion is that the etymology from the Arabic  *âsâ* is altogether the most satisfactory, as the derivation from *laser* appears to him to be too far fetched. This gains additional plausibility from the well known fact that the school of Salerno obtained much of its erudition from the Arabic physicians. The writings of Rhazes and Avenrois enumerates asafœtida and Avicenna mentions both the sweet and the stinking asa.

A third etymology is given by Flückiger in his "*Pharmakognosie des Pflanzenreiches*," Berlin, 1867. He deems it probable that our *asa* and the Chinese *awei* both originated from the word *anguzeh*, or *ungoozeh*, as the Dispensatory represents it, the modern Persian name of the plant furnishing the drug. It will be noted that all the roots so far enumerated contain only a single sibilant consonant.

The fourth and last source, which the writer has found only in "Chambers' Encyclopædia," is from a Persian word,  *ăsā*, signifying staff. The chief motive for offering this seems to be that it is synonymous with the Greek νάρθηξ and the Latin *ferula*, both of which refer to the upright stalk of the plant. This is evidently a marked characteristic, as even its present name in the Aralo-Caspian territory is stinking reed (Keurök-Kurai). "Chambers' Encyclopædia" spells assafœtida and renders the above Persian word into English characters as *assa*. On the other hand, "Chambers' Etymological Dictionary," emanating from the same firm in 1869, edited by James Donald, only mentions assa and refers to asafœtida. Furthermore, "Duncan Forbes' Persian Grammar and Vocabulary" represents the word in English letters by *ăṣā*. Again, "Catafago's Arabic Dictionary" contains the same word, and renders it likewise as *asa*, with a peculiar guttural sound to the first vowel.

Although the authorities in English are divided on the orthography of asafœtida, it will be found that the majority favors the use of a single consonant, provided, of course, that those are excluded who follow the Pharmacopœias simply because they are the accepted standard. "Webster's Dictionary" merely enumerates assafœtida and refers to asafœtida. "Johnson's Dictionary," by Dr. R. G. Latham, "Sheridan's Dictionary," and very many others give only the form *asa*. "Dunglison's Medical Dictionary" gives asafœtida, and following it as a synonym assafœtida, in support of which the United States Pharmacopœia is

specially quoted. Gray's Supplement to the Pharmacopœia revised by Redwood, uses only asafœtida. The "Pharmacographia" of Flückiger and Hanbury, which has just been published, also makes use of *asa*. This testimony is particularly valuable, since etymology seems to have received special attention from these authors, as shown by the recent discussion in the "Pharm. Jour." on the spelling of *Chondodendron* or *Chondrodendron*. In opposition to this, Worcester prefers *assa*, but enumerates and defines also asafœtida, thus showing that he considers it nearly or quite as well authorized as the other form.

In German, the equivalent name *asant* is invariably written with the single s. In Spanish, Russian and Portuguese, *asa* is used to the entire exclusion of *assa*.

The French dictionaries give *assa*, yet in opposition to this, Guibourt, in "Histoire Naturelle des Drogues Simples," and Dorvault, in "l'Officine," use *asa-fetida* only, and the "Dictionnaire des Drogues," by A. Chevallier and A. Richard, Paris, 1827, says: "*Assa ou mieux asafœtida.*" A. Andouard, in his "Nouveaux éléments de Pharmacie," Paris, 1874, also uses asafœtida.

The corruption, if it may be so termed, of asa into assa was adopted into the "Edinburgh Pharmacopœia" in 1805*, as that issue contains a table in which the word assafœtida is mentioned as having been changed from asafœtida of the former editions. A somewhat similar tendency appears to prevail among some of the theologists in regard to the identical word under consideration. אָסָא occurs in the Bible as the proper name of two different individuals, the more important one being the third King of Judah. Although in both instances spelled and pointed in precisely the same manner, it is variously rendered into Greek by Josephus, the "Septuagint" and the "Alexandrian Codex" as *Ασά*, *Ἀσάνος*, *Ὀσσά* and *Ἀσσά*.

We are consequently forced to conclude that neither the derivation from the Latin *laser* nor that from the Semitic *âsâ* justifies the use of the double consonant. We also find *asa* to be in use in the greater number of languages. In addition, we have shown that the best and most accurate writers in those few languages which sanction the use of *assa*, show a decided preference for *asa*.

The only argument which we have been able to find in favor of the

* *Assa Fœtida* is used in the new London Dispensatory, of which we have an edition (without title-page) printed in 1676.—EDITOR AM. JOUR. PHAR.

duplicated form, is the derivation offered by Chambers' Encyclopædia from the Persian ăsă, translated as stick, staff, baton, or bludgeon. Unsupported as this seems to be by other authorities, and in view of it being in direct opposition to the fact that both Persian and Arabic dictionaries render the same term into English with a single consonant, we cannot attach any importance whatever to this assertion. As an inevitable deduction from the facts which have been stated, we feel conscientiously bound to insist on the expunction of the barbarism *assa* from pharmaceutical literature, used either as a Latin or as an English word, and to recommend its exclusive substitution by *asa*.

Philadelphia, January 13th, 1875.

P.S.—Since the reading of the above paper, I have been favored by Prof. Maisch with a very elaborate monograph on those ferulaceæ of the Aralo-Caspian desert, which possess importance in pharmacy. The document emanates from the Imperial Academy of Sciences of St. Petersburg, to which it was presented, Aug. 17th, 1860, by El. Borszczow. The author uses *asafœtida* throughout as a Latin word, deriving it from the *Laserpitium* of Pliny. He follows in this respect a writer of the 16th century, Garçia ab Orta, who published the "Aromatum Historia." The derivation from the Persian word *assa*, staff, is also mentioned, but refuted by the fact that Kämpfer, who was well versed in the Persian language, when discoursing on the name *asa fœtida*, does not allude to any such word. On the contrary, in his classic description of the plant furnishing the drug, Kämpfer explicitly states that he does not know the origin of the name *asa fœtida* current among the Europeans.

NOTES ON SOME INDIGENOUS DRUGS.

(*Abstracts from Essays presented to the Philadelphia College of Pharmacy.*)

Bitter Principle of Wild Cherry Bark. By John L. Williams, Ph. G.—The author did not succeed in completely isolating the bitter principle of wild cherry bark. The following process gave the most satisfactory results:

An aqueous infusion of the bark was concentrated, filtered, mixed with an equal volume of alcohol, and, after standing for twelve hours, filtered. The liquid was treated with milk of lime, the filtrate evaporated to a syrupy consistence, a large quantity of alcohol added and the filtrate evaporated. The residue was exhausted with boiling alcohol, which on spontaneous evaporation yielded a transparent brownish

residue, of a somewhat gelatinous aspect. It possessed a bitter taste, was insoluble in ether, soluble to a limited extent in water, more soluble in alcohol, particularly if heated. Concentrated sulphuric acid colors it brown red; cold nitric acid has but little effect upon it.

Actæa alba, Bigelow. By William Dilmore, Ph. G.—This plant is popularly known under the name of white cohosh, white beads, Noah's ark and necklace weed. The rhizome with the rootlets, which is the portion medicinally employed, has at first a sweetish-bitter, afterwards acrid taste, followed by a peculiar irritating sensation upon the fauces.

The distillate with water possessed the odor of the root and a slight taste. The infusion and decoction were found to contain albumen, gum, sugar, starch and extractive, but neither tannin or gallic acid. The alcoholic tincture contains two resins having the acrid taste of the root, both of which are soluble in alkalies and repreçipitated by acids, while ether dissolves one only. After the concentrated tincture has been precipitated by water, and the resins filtered off, the liquid froths considerably on agitation, and contains a principle analogous to saponin, which may be obtained in a still impure condition by evaporating the liquid, extracting the residue with diluted alcohol, decolorizing by animal charcoal, and agitating with ether, which on spontaneous evaporation yields a brown, translucent and brittle substance, having a bitter and acrid taste. It is soluble in alkalies, water, diluted and strong alcohol, assumes with warm sulphuric acid a rose color, changing to purple, and finally violet.

Cypripedium acaule, Lin. By H. Northam Bryan, Ph. G.—The attention of the author was attracted to this plant from observing persons engaged in collecting its subterraneous portion, and, upon inquiry, being informed that it was to be used as an emmenagogue; afterwards, the effects of this rhizome with rootlets were observed, tested in several instances with apparent success. The drug, when fresh, has a rather strong and heavy odor and a bitter taste, and in the dry state is of a dark-brown color.

Only a limited quantity of the material could be procured for experimental purposes, from the results of which it appears that it yields, on distillation with water, a minute quantity of volatile oil; to carbon bisulphide and to alcohol, some resinous matter, which is wholly soluble in ether, and to ether about ten per cent. of solid matter, which

is only partially dissolved by alcohol, the insoluble portion giving a blood-red color with sulphuric acid. The presence of tannin, sugar and starch was likewise proven.

ON SUPPOSITORIES.

BY GEORGE W. KENNEDY, PH. G.

(*Read at the Pharmaceutical Meeting, January 19th, 1875.*)

Considerable has been said of late as to the best method of making suppositories. At the last meeting of the American Pharmaceutical Association, I read an article on the advantages of making suppositories by hand over the mode of making them by moulds. This created considerable discussion, which was participated in by many of the members present pro and con, and being called upon for my process of operation, I gave it verbally—a separate paper on this process, which had been prepared by me, having been accidentally left at home. I therefore desire to give it, through the *Journal of Pharmacy*, to all pharmacists who may wish to experiment with it and to adopt it in the preparation of suppositories.

During the last few years I have read quite a number of articles in the different medical and pharmaceutical journals on the subject—"suppositories"—and have obtained many valuable intimations from the authors, but, still, there appears to be the same objection to most of them, particularly in relation to the time consumed in making them, and on account of the addition of some hardening material to give the cones a greater degree of stiffness. I do not wish to be understood here as advocating the turning out of suppositories quickly, and lacking in medicinal strength or uniformity, but simply to stand by the quickest way of making them, so as to contain exactly what the physician expects them to contain. The process by moulding may answer the purpose of manufacturers of pharmaceutical preparations, who make them in large quantities and in a hurry, regardless of the equal distribution of the medicament. They are put up neatly, look elegantly, and the manufacturers are largely rewarded for their labor, but never once think of the poor sufferer, who expects immediate relief only to be disappointed, if the suppository is not of the strength represented. Some kinds are not used often, and, when stored away on the shelves for a long time, will absorb oxygen and become rancid, fatty acids being liberated, which are irritants and render such suppositories, therefore, unfit to be ap-

plied. Another objection is raised: when made with English narcotic extracts, such as hyoscyamus, belladonna, and others, such extracts contain moisture, and the suppositories, if kept for some time, mould, and are then likewise unfit for use. This proves the necessity for each and every pharmacist of making all suppositories fresh as wanted. I, for one, wish suppository-moulds had never been introduced, then manufacturers of the like would never have made them, as they would not be sufficiently compensated for their time and trouble, and all retail pharmacists would be compelled to make them as wanted.

Pharmacists are not always to blame in keeping "A," "B," or "C's" suppositories, but frequently physicians. A salesman representing some city house comes along with a list of suppositories, representing No. 1 to contain cacao-butter; No. 2, 1 grain opium; No. 3, 2 grains opium, and so on. Having a free flow of language, he finally persuades the physician to use them in his practice, and in this way, to a certain extent, we are compelled to keep ready-made suppositories and other preparations made by different parties. When I receive a prescription for "A," "B," or "C's" suppositories, and knowing their composition, I make them myself, previously informing the physician, and as yet have never been denied that privilege by any; and I believe any other pharmacist could do the same, if he choose to. I keep nobody's suppositories but my own, and generally make them as wanted. There is no secret in making suppositories, and there is not a pharmacist in this land deserving of the name but ought to make all that go out of his shop; it is just the same with many other preparations that apothecaries often depend on manufacturers for, such as solid and fluid extracts, ethers, and even elixirs, syrups and cordials. It has been proved, by Ottmar Eberbach (Proc. Am. Pharm. Assoc. for 1872, page 264), by an examination of some of the more prominent elixirs of the market, that they are not much more than mixtures of alcohol and water, sweetened and flavored, many of which are used more as intoxicating stimulants than as a medicine; some contain fully 50 per cent. of alcohol, and no doubt in this way find a ready sale.

Many apothecaries favor the addition to suppositories of some hardening material, while they differ vastly what that ingredient should be, and also what quantity to be added, some advocating the use of paraffin, spermaceti, wax or Japan wax. I beg to differ with all those who favor the addition of any substance for the purpose of giving the suppository a greater degree of stiffness. In the opinion of the writer, it

is not necessary. I never use anything but cacao butter, and while I have prepared a large number of suppositories, I have experienced no difficulty whatever. Occasionally I have heard of complaints by pharmacists that suppositories, when made of cacao butter alone, will lose their shape, and have been returned to them in a soft condition to be remade. This might, perhaps, occur when they are placed in a very warm room or near a fire; but I have never known suppositories made of commercial cacao butter to lose their shape, or even to find their surface to yield to the temperature of the room where they were kept, and I have had sufficient experience in their manufacture to know that they will keep during the hottest summer months in our climate. There are some few substances that act on fats like camphor, which are quite troublesome to make; but even for suppositories of this character I use nothing but oil of theobroma. There is no doubt but much of the cacao butter, as found in the market, is adulterated with fats having low fusing points, and this would account for some suppositories losing their shape and becoming soft. To obtain absolutely pure cacao butter, it would be necessary to make it yourself. Purchasing some a few months ago, during the summer, I visited several wholesale houses for the purpose of satisfying my curiosity to know what was sold or was offered for sale as cacao butter. Of all the houses visited, I found but two offering for sale, in external appearance, objectionable cacao butter, which was very light in color, nearly destitute of the chocolate-like odor, and the outer appearance resembling oil of theobroma that had yielded its surface to the warmth of the hand; while other samples examined the same day were yellowish in color, could be handled with impunity, and possessed a strong characteristic chocolate odor. A fair article of cacao butter may therefore be obtained.

Of the many excipients that have been introduced since the time when suppositories were first recommended, none appears to answer the requirement so well as cacao butter; it is decidedly the best, and, to my knowledge, no other substance or composition has been proposed that can well be substituted for it in its singular use as a medicine and vehicle.

In using medicines by suppository, their action must be quick, and the only way to procure this is to use an excipient that will melt rapidly and uniformly. Physicians object to the use of many of the hardening ingredients in suppositories—wax, for example—because the temperature of the body will not overcome their higher melting-point; they are

thus left behind, unmelted, in the rectum, in this condition they are very apt to produce local irritation, and are therefore unfit to enter into the composition of suppositories.

This reminds me of a little incident which occurred in our town two years ago. A physician was sent for in haste to see a very sick person, and prescribed suppositories, the composition of which I cannot recall at present, with the exception of one of the ingredients, which was carbolic acid; the prescription was dispensed by a druggist, and one applied as directed. After remaining in the rectum a short time, it was discharged, and exhibited nearly the same appearance as when introduced; a second one was applied with the same result. The medical attendant examined the suppositories more closely, and found they would not yield even to the warmth of the hands, and inferred from that that a large percentage of wax had been used in their preparation. He wrote another prescription, and had them compounded elsewhere; they were applied, and had the desired effect. The balance of the first box were brought to my shop, and upon examination I found the fusing point to be 120° F.

In the opinion of the writer, the best mode of dispensing suppositories with dispatch, insuring at the same time a perfect distribution of their medicinal ingredients, avoiding all foreign matter for the purpose of hardening, and giving the satisfaction to know that the cones will melt at animal heat, is the following, which I offer to the readers of the Journal, hoping it will be of benefit to those pharmacists who have experienced trouble and loss of time in their preparation:

Take of cacao butter a sufficient quantity, powder in a wedgewood mortar by first striking the butter gently until it is broken up into quite small pieces, a little care being required so as not to strike too hard, otherwise the friction produced would have a tendency to soften the butter, making it a little more difficult to manipulate; then add the medicinal ingredient, and rub all together, forming a plastic mass to be rolled out into a suitable length, and cut up into as many pieces as suppositories have been directed, each piece to be formed by the fingers and a spatula into a conical shape. It is advisable to sprinkle a little lycopodium over the fingers to prevent contact of heat from the fingers, which would soften the mass during the necessary manipulation. If made in winter, when cacao butter is much harder, by the addition of one drop of glycerin to each suppository, a mass can be formed in a much shorter time.

Pottsville, Pa., January, 1875.

ELIXIRS OF CINCHONA.

BY HANS M. WILDER.

Being a member of the American Pharmaceutical Association, I consider it my duty to conform to its formulas (*Amer. Jour. Phar.*, vol. xlvi, p. 83), although I had my misgivings about the stability of these elixirs, having made at different times similar trials. After about nine months' experience I have given it up, being tired of filtering and re-filtering the elixirs at intervals of two to three weeks, and have returned to my old formulæ, using, however, the simple elixir as corpus.

Elixir Cinchonæ.

Cinchoniæ sulphat.,	grs. xvi
Quiniæ sulphat.,	grs. viii
Dissolve in	
Elixir. simpl. (Amer. Pharm. Asso.)	Oi
Color with	
Tinct. cudbear (1–8),	
Caramel,	*aa.* ♏xxx.
Mix, let stand for a week, and filter.	

When first made, it is beautifully clear, but soon gets turbid; by letting it stand for eight to ten days, and then first filtering, it will keep clear for quite an indefinite period.

It is stronger than that according to the American Pharmaceutical Association, which contains at the most twelve grains of the alkaloidal sulphates (one pint contains 22 fluidrachms of tinct. cinchon., U. S., which is equal to $4\frac{1}{8}$ drachms of the bark, = about 5 grains of the crystallizable alkaloids, = nearly 12 grains of the sulphates). While my elixir is strong enough to produce a decided impression on the system, it is not so bitter that it becomes unpalatable.

Elixir Cinchonæ Ferratum.

Ferri pyrophosph.,	℥ii, grs. viii
Dissolve in	
Aquæ. bullient,	℥i
Mix with	
Elixir. cinchonæ,	f℥xv
M.	

Elixir Cinchonæ Comp.

Tinc. serpentariæ,	℥iii
Elixir. cinchonæ, to	Oi
M.	

Elixir Cinchonæ Comp. Ferratum.

Ferri pyrophosph.,	℥ii, grs. viii
Aquæ bull.,	℥i
Elix. cinchonæ comp.,	f℥xv

M.

Elixir Rubrum.

Elixir simplex,	Oi
Tinc. cudbear (1 to 8),	q. s. (about ℥i–℥ii)

M.

Philadelphia, First month 16, 1875.

NOTE BY THE EDITOR.—The arguments in favor of the formulæ for elixirs, as recommended by the Pharmaceutical Association, are:

1. That the names indicate the true composition; and,

2. That, the simple elixir being kept on hand, they may all be readily prepared extemporaneously.

EXAMINATION OF CITRATE OF MAGNESIUM AND EFFERVESCENT CITRATES AND TARTRATES.

BY WILLIAM SCHRAGE, OF SHEBOYGAN, WIS.

1. *Quantitative determination of Citric Acid, and Tartaric Acid, alone or in presence of each other, or of Sulphuric Acid, or Sugar.*—It may be premised that the determinations of magnesia, potassa, soda, sulphuric acid and carbonic anhydride—qualitative and quantitative—may be readily made according to the directions of ordinary manuals of qualitative and quantitative analysis. For the bases, the water solution of the material is slightly acidulated with acetic acid, and boiled to expel all carbonic acid. For the flame colors of the alkalies the organic portion must first be burned out. Magnesium is precipitated as ammonio-phosphate and weighed as pyrophosphate. Sodium, in absence of potassium, may be weighed as sulphate; but if magnesium is present, it must first be removed by baryta solution, the baryta being then removed as sulphate. If soda and potassa, both are to be estimated, they must first be obtained (and weighed together) as chlorides, and to this end, if sulphates are present (as from removal of magnesium), the sulphuric acid must first be all removed by baryta solution and the excess of baryta by carbonic anhydride. From the potassic and sodic chlorides the potassic chloride is then taken out with platinic chloride and alcohol. For the qualitative determination of citric and tartaric acids, if sulphates are present, the sulphuric acid should first be removed.

This may be done by adding silver nitrate in dilute solution in the cold: the precipitate (citrate, tartrate) being washed on a filter with several small portions of distilled water. (A portion is soluble in nitric acid; not chloride.) If sugar be not present, tartrate may be identified by the blackening when heated. In presence of sugar, the precipitate should be decomposed by hydrosulphuric acid gas and the silver sulphide filtered out. The filtrate is now neutralized with potassa, and calcium chloride is added: a precipitate in the cold indicates tartaric acid. The mixture (or the filtrate) is boiled; a resulting precipitate indicates citric acid. These precipitates are now treated with cold concentrated potassa solution; a solution, gelatinous when boiled and liquid when again cold, indicates tartaric acid; non-solution indicates citric acid, the precipitate being soluble in cupric chloride solution.

Estimation of Citric Acid in absence of Sulphuric and Tartaric Acids.—*a.* As calcium citrate. Neutralize the solution; add sufficient calcium chloride solution; boil for some time (to change the precipitate from the amorphous to the crystaline state), collect on a tared filter; wash; dry at 120° to 150° C. (248° to 302° F.) and weigh. $Ca_3(C_6H_5O_7)_2 : 2H_3C_6H_5O_7 : : 1 : 0{\cdot}77108$, or $Ca_3(C_6H_5O_7)_2 : 2H_3C_6H_5O_7H_2O : : 1 : 0{\cdot}84337$.

b. By precipitation as barium citrate, from barium acetate, in alcohol of 60 to 95 per cent., for weighing as barium sulphate.—J. Creuse: *Am. Jour. Phar.*, xliii (1871), 537.

If sulphates are present, the sulphuric acid should be determined by precipitation with barium chloride in presence of hydrochloric acid, and the resulting barium sulphate deducted from the total barium sulphate obtained according to the preceding paragraph.

Estimation of Tartaric Acid in absence of Sulphuric and Citric Acid, (and other Acids forming insoluble Lead Salts.)—Ammonium salts should not be present. *a.* The solution, very slightly acidulated with acetic acid, is precipitated with lead acetate solution, and the precipitate is washed on a tared filter with dilute alcohol, and dried on the water-bath. $PbC_4H_4O_6 : H_2C_4H_4O_6 : : 1 : 0{\cdot}422535$.

If sulphates are present, the sulphuric acid should be estimated by itself, and its equivalent quantity of lead sulphate deducted from the weight obtained according to the preceding paragraph.

b. Tartaric acid may also be determined as a calcium salt. For this purpose, the neutral solution is treated with chloride of calcium in slight

excess, the mixture boiled and set aside for twenty-four hours. The precipitate is then washed, on a tared filter, with a little water and much dilute alcohol, dried at 40° to 50° C., and weighed. $CaC_4H_4O_64H_2O$: $H_2C_4H_4O_6$: : 1 : 0·577.

Estimation of Tartaric Acid in presence of Citric Acid.—This is an especially difficult separation, and the results by the following method are only approximate. The concentrated solution is made nearly neutral, but slightly acid, with acetic acid. Alcohol is added, short of precipitation, and then concentrated solution of potassium acetate in slight excess. The precipitate is washed with alcohol, on a tared filter, and dried on a water-bath. $KHC_4H_4O_6$: $H_2C_4H_4O_6$: : 1 : 0·797. Sulphates do not interfere; but if they preponderate, the first washing of the precipitate should be with dilute alcohol, and, after weighing, the precipitate should be found free from sulphates.

Estimation of Citric Acid in presence of Tartaric Acid.—Obtain the calcium precipitate by the directions for tartaric acid alone, *b* (drying at about 50° C.). With another portion of material find the amount of tartaric acid from the hydric potassic tartrate, according to the preceding paragraph. Calculate the equivalent calcium tartrate: $H_2C_4H_4O_6$: $CaC_4H_4O_64H_2O$: : 1 : 1·733. Subtract this from the weight of the calcium-tartrate and citrate-precipitate obtained, and from the remainder, as $Ca_3(C_6H_5O_7)_22H_2O$, calculate the citric acid.

The foregoing methods have been gathered from various authors, in current works, and the writer has merely succeeded in verifying them, as giving (except for separation of citric from tartaric acid) close results. I have also tried the separation of citric from tartaric acid, as calcium salts, by solubility of the calcium salt in potassa solution, with the following (unsatisfactory) results:

Took 0·450 grams of tartaric acid and 0·630 grams of (crystallized) citric acid, dissolved in water; added ammonia to a very slight alkaline reaction, and then calcium chloride in excess, boiling the precipitate for a long time. Washed thoroughly, on a filter, with hot water; the washings continuing to contain calcium. Treated thoroughly with solution of potassa, and washed the residue on a tared filter, and dried below 100° C. The weight of the precipitate, 1·030 gram, as the hydrated calcium citrate, $Ca_3(C_6H_5O_7)_2 2H_2O$, corresponds to 0·810 gram of crystallized citric acid, being 0·180 gram more than was taken —an increase of 28 per cent.

2. *Analyses of a few Citrates and Tartrates in Market.*—1. H. W.

Swift and Bro. "Effervescing Citrate of Magnesia."—Qualitative: Sodium, carbonic *anhydryde*, tartaric acid, sugar, a trace of sulphuric acid. No magnesium or citric acid. Quantitative, from 1 gram: lead tartrate, 0.970 gram, equivalent to 0·410 of tartaric acid; sodium sulphate, 0·372, equivalent to 0·277 of anhydrous sodium carbonate; carbonic anhydride, 0·050. As 0·277 of dry sodium carbonate furnishes 0·105 of carbonic anhydride, it follows that $\frac{55}{105}$ of the sodium has become tartrate during and after manufacture. The article as purchased then stands very nearly as follows:

Sodium carbonate,	0·132	representing	Sodium carbonate, 0·277
Sodium tartrate,	0·265		Tartaric acid, 0·410
Tartaric acid,	0·205		
Sulphuric acid (a trace), Sugar, water, etc.,	0·398		
	1·000		

(0·277 of sodium carbonate would neutralize 0·392 of tartaric acid; hence the analysis shows an excess of only 0·018 of acid, or four per cent. of the whole.)

2. Nichols and Co., "Effervescing Citrate of Magnesia."—Qualitative: Magnesium, sodium, sulphuric acid, tartaric acid, carbonic anhydride, sugar. The results of the quantitative work, placed in the form in which the ingredients were probably taken, were as follows:

Magnesium sulphate (anhydrous),	0·122
Sodium carbonate (dried),	0·242
Tartaric acid,	0·430
Sugar, water, etc,	0·206
	1·000

(The carbonic anhydride was not determined. and 0·342 of sodium bicarbonate may have been used instead of the 0·242 of normal carbonate, leaving 0·106 of sugar, etc. The tartaric acid is 0·038, or nearly nine per cent. in excess of that required to neutralize the sodium.)

3. Billings, Clapp and Co., "Magnesia Aperient." Qualitative: Magnesium sulphate, sodium carbonate or bicarbonate, potassium (bicarbonate or sodio tartrate ?), tartaric acid, sugar.

4. W. J. Gordon's "Citrate of Magnesia."—A neutral magnesium citrate, dissolving with difficulty (not effervessing).

5. Tarrant's "Effervescing Seltzer Aperient."—Qualitative: Mag-

nesium sulphate, sodium bicarbonate, potassium bicarbonate, tartaric acid, sugar.

6. Chas. Ellis and Co., "Prepared Citrate of Magnesia."—Qualitative: Magnesium citrate, sodium bicarbonate, potassium salt (a trace), citric acid, sugar.

University of Michigan, July 1, 1874.

GLEANINGS FROM THE EUROPEAN JOURNALS.

BY THE EDITOR.

Anilin Inks.—C. H. Viedt objects to the use of fuchsin and other anilin colors, which are insoluble in water, and recommends the employment of such colors only which are soluble in water. Such inks do not require the addition of gum arabic or dextrin, except for slow and heavy writers, and should be so far diluted that the writing, when dry, is free from the metallic lustre of the anilin colors. The author recommends the following proportions:

For *red ink*, dissolve 1 part of diamond-fuchsin in 150 to 200 parts of boiling water.

For *blue ink*, take 1 part of bleu de nuit (anilin blue, soluble in water) to 200 or 250 parts of boiling water.

For *violet ink*, which is very extensively employed, 1 part of the color is dissolved in about 300 parts of water. This ink is very easily affected by ordinary black copying ink, a pen containing some of the latter rendering the former at once very pale and granular.

Green anilin ink is the handsomest, but also the dearest, of all anilin inks. It is prepared by dissolving 1 part of so-called iodine green, which is soluble in water only, in 100 or 110 parts of boiling water. The writing is of a blue-green color; if a more yellowish-green shade is desired, a little picric acid should be added.

Yellow anilin ink cannot be recommended. A solution of 1 part of picric acid in 120 or 140 parts of water is better and cheaper.—*Dingler's Polytechn. Jour.*, 1874, *Oct.*, *pp.* 167–169.

Impurity in Commercial Ammonia.—Dr. G. C. Wittstein calls attention to the fact, that nearly all the commercial ammonia is made from gas liquor, which contains small quantities of anilin, toluidin, &c. In the purification of gas liquor these compounds enter with the ammonia into all other combinations, and remain finally in ammonia liquor in such

decided traces that they may be recognized by the color of their oxidation products. If nitric acid is partially neutralized by such ammonia, a rose or deeper red color is produced, which disappears again on the further addition of ammonia to supersaturation. If the ammonia is at once added in excess, this coloration is not observed.—*Ibid.*, *Sept.*, *pp.* 512–514.

Volatile Oil of Garden Cress (*Lepidium sativum*).—Dr. Hugo Trommsdorff prepared this oil by distilling the fresh herb, immediately after flowering, with steam. The distillate did not separate any oil, which was obtained by agitation with benzol, 73 kilograms of the herb yielding 84 grams. Professor A. W. Hofmann found this oil to boil at 226·5° C., at which temperature three-fourths distilled over. The first portion contained a sulphur compound, the nature of which has not yet been ascertained; the remainder of the distillate consists of the nitrile of phenylacetic acid, and is therefore identical with the oil of *Tropæolum majus* ("Amer. Jour. Phar.," 1874, p. 331), which it resembles closely in odor.—*Ber. d. d. Chem. Ges.*, 1874, *p.* 1293.

Allylalcohol among the products of the dry distillation of wood.—The penetrating odor of crude wood-spirit, according to B. Aronheim, is due to allylalcohol, which, in its pure state, boils at 97° C. (206·6° F.), the boiling point being, however, reduced to 88°–89° C. by the addition of water.—*Ibid.*, *p.* 1381.

Oil of Eucalyptus.—A Faust and J. Homeyer state that the eucalyptol of Cloëz ("Amer. Jour. Phar.," 1870, p. 465) is a mixture of different compounds, and that the oil of *Eucalyptus* consists of, 1, a terpen, $C_{10}H_{16}$, boiling at 150°–151° C.; 2, another terpen, $C_{10}H_{16}$, boiling between 172° and 175° C.; 3, cymol, $C_{10}H_{14}$; and, 4, a body, $C_{10}H_{14}O$, which, by sulphur phosphide, is readily converted into cymol. The compounds 2 and 3 constitute about nine-tenths of this volatile oil, and the proportion of the terpen to the cymol is 2 : 1.—*Ibid.*, *p.* 1429.

Volatile Oil of Olibanum.—By fractional distillation, A. Kurbatow separated this volatile oil into oliben and an oxygenated portion, the latter boiling above 175° C. Oliben = $C_{10}O_{16}$ has an agreeable aromatic odor, a specific gravity of 0·863 at 12° C., boils between 156 and 158° C., and yields, with muriatic acid gas, crystals of the composition $C_{10}H_{16}HCl$.—*Annal. d. Chemie*, *vol. clxxiii*, *p.* 1.

Volatile oil of calamus has been examined by the same author, who obtained from the portion boiling below 170° C., after treatment with

sodium, a terpen, $C_{10}H_{16}$, boiling between 158° and 159°, and having a specific gravity of 0·8793 at 0° C. The portion boiling at a higher temperature was of a deep-blue color and not of a constant boiling point.—*Ibid.*, *p.* 4.

Iodine and arsenious acid yield, according to Prof. Zinno, ("Amer. Jour. Phar.," 1873, p. 445) prismatic crystals of iodo-arsenic acid. M. Wegner has repeated these experiments and comes to the conclusion that such an acid cannot be obtained by the published process. When iodine is dissolved in a solution of arsenious acid, as long as decoloration takes place, the liquid contains hydriodic and arsenic acids, the presence of which can be readily proven by the reaction with silver nitrate. On evaporation, iodine is set free and the arsenic acid is reduced to arsenious acid, which finally crystallizes in octohedrons and flat tables, produced by the enlargement of two opposite planes of the octohedrons; these crystals are arsenious acid, retaining a minute quantity of hydriodic acid. Precisely the same behaviour is shown by a mixture of solutions of hydriodic and arsenic acid.—*Ibid.*, *vol. clxxiv*, *pp.* 129–133.

The adulteration of beeswax with Japan wax appears to be carried on in some parts of France to some extent. Ch. Mène, in experimenting with the view of detecting this adulteration, has obtained the following results:

	Density.	Fusing point. *Degrees C.*	Congealing point. *Degrees C*
Japan wax,	1·00200(?)	52–54	45–46
Beeswax,	0·96931	64–65	63–64
50 parts Japan wax with 50 parts beeswax,	0·93518	64–65	61–62
60 " " " 40 " "	0·92785	64–65	61–62
65 " " " 35 " "	0·90730	64–65	61–62
70 " " " 30 " "	0·90452	63–64	61–62
75 " " " 25 " "	0·90164	63–64	62–63
80 " " " 20 " "	0·88703	63–64	62–63
90 " " " 10 " "	0 85100	63–64	62–63

It will be observed that the specific gravity is a better means to detect such a fraud than either the fusing or congealing point.—*Rép. de Pharm.*, 1874, *p.* 427.

Salicylic acid, according to Prof. H. Kolbe, retards or prevents the decomposition of amygdalin by emulsin, the generation of the volatile oil in powdered mustard, the fermentation of glucose, the produc-

tion of fungous growth upon beer exposed to the air, and the spoiling of milk, wine and eggs. The observations of Prof. Thiersch, made in the surgical wards of the Leipsic Hospital, justify the expectation that salicylic acid may possess the desirable properties of carbolic acid without the disadvantages of the latter. On account of its antiseptic proporties, H. Kolbe suggests the use of salicylic acid in cholera, etc., internally as well as in subcutaneous injection and in the form of clysters. The author has published a process whereby this acid may be easily obtained in considerable quantities, by heating dry carbolate of sodium in a current of dry carbonic acid gas, gradually, from 100° C. to 220° or 250° C.—*Journ. f. prakt. Chemie, New Ser., vol. x, pp.* 89–112.

W. Knop affirms the antiseptic properties of salicylic acid also for the germination of seeds and the growth of young plants under various conditions; the growth of mould is prevented until the free acid has been neutralized by the ammonia, generated by the decomposition of albuminous bodies.—*Ibid., pp.* 351–355.

RESEARCHES ON THE DECOMPOSITION OF SOME SALTS BY WATER.*

BY MR. DITTE.

In a first note, Mr. Ditte has examined the action of water on mercuric sulphate HgO,SO_3. In contact with water and at the ordinary temperature, the mercuric sulphate becomes immediately colored; the subsulphate $3HgO,SO_3$ precipitates, and the water becomes strongly acid. This reaction continues on the further addition of the neutral salt, until a certain proportion of sulphuric acid has been set free, when the sulphate will be simply dissolved until the liquid is entirely saturated.

According to the experience of Mr. Ditte, water containing less than 67 grams of free sulphuric acid to the litre will, at 12° C., decompose the salt HgO,SO_3; but as soon as it contains more than 67 grams of acid, it loses all its chemical action on the neutral salt, and dissolves it without decomposition. In the presence of an excess of subsulphate, some neutral salt will even be reproduced, so that, whatever the starting point was, a liquid will always be obtained containing 67 grams of acid, provided the temperature remains the same. The liquid, which

* Translated from "Journal de Pharmacie et de Chimie," December, 1874, p. 448–450.

ceases to decompose the neutral salt at 12° C., will again decompose it and color it yellow on raising the temperature. The presence of another acid in the liquid makes no change in the reaction.

The second note of Mr. Ditte treats of the action of water on nitrate and subnitrate of bismuth and chloride of antimony.

At the ordinary temperature, the crystals of nitrate of bismuth $BiO_3,3NO_5,3HO$ are immediately decomposed by water, which becomes strongly acid; at the same time a white precipitate, always crystalline, appears. The crystals have the formula BiO_3NO_5 with one, two, three or four equivalents of water, according to the temperature. The decomposition ceases as soon as the proportion of free acid is 83 grams to the litre, and then the nitrate simply dissolves. On the addition of either water or nitric acid, the composition of the mixture is modified, until it again reaches that quantity of free acid, which, if in excess, combines with the subnitrate to reconstruct the neutral salt, or, if insufficient, decomposes the neutral nitrate previously dissolved. Successive additions of water to an acid solution of neutral nitrate determine the precipitation of subnitrate, and the liquid returns always to its limit of acidity until the neutral salt has entirely disappeared.

On heating a clear solution of neutral nitrate, a crystalline precipitate of subnitrate will be observed, which disappears on cooling. In raising the temperature the limit of free acid is augmented, which the solution must have to avoid decomposition of the neutral salt; this is then decomposed but, on cooling, the free nitric acid and subnitrate again combine and the precipitate disappears. The subnitrate of bismuth BiO_3,NO_5,HO, is also decomposed by water into free acid and an amorphous more basic salt. The decomposition is slow in the cold, but at 100° C. the water decomposes it until it contains about 4 to 5 grams free acid per litre, finally forming the basic nitrate $2BiO_3$, NO_5. Water of 100° C., containing less than 4 to 5 grams of acid per litre, becomes turbid and immediately decomposes the subnitrate; the liquid becomes clear from 4 to 5 grams, while the free acid in excess combines with the sub-salt $2BiO_3,NO_5$ formed, and the nitrate BiO_3,NO_5 appears again with its crystalline form and its silvery lustre. In the same manner the neutral salt, treated with water, yields at first the crystalline subnitrate BiO_3,NO_5, which, when washed with cold or warm water, is transformed into a white powder, which is a mixture of the basic salts $2BiO_3,NO_5$, and BiO_3,NO_5. After a prolonged wash-

ing, the uniform product $2BiO_3,NO_5$ is obtained. What has been said above on the subject of nitrate of bismuth applies likewise to chloride of antimony Sb_2Cl_5; it is decomposed by water into a white precipitate of oxychloride Sb_2O_2Cl, and into free chlorhydric acid until the liquid contains about 159 grams to the litre, then it dissolves without decomposition. Every liquid which contains less acid, decomposes the chloride nto oxychloride and free acid; while, on the contrary, an excess of free acid reproduces the chloride. Oxychloride of antimony, like the subnitrate of bismuth, is decomposed by water, especially at the temperature of 100° C. C. J. M.

BROMINE.

From Circular No. 24, Philadelphia Drug Exchange.

We have been kindly furnished with some interesting facts as to the manufacture of bomine by two of the largest producers in this country, and from their communications we extract the following:

Bromine was manufactured in the United States as early as 1846, by Dr. David Alter, of Freeport, Pa., who continued the manufacture until about 1856. During this time bromine, in its compounds, had been used principally for daguerreotyping. When this method for taking pictures was succeeded by the ambrotype method, the demand for bromine decreased and soon became insufficient to the encouragement of home manufacture, and in consequence the production ceased.

It was not until 1866, when the alkaline bromides, as means to relieve sleeplessness and nervous excitability, had been introduced to and adopted by the medical profession, that the manufacture of bromine n the United States was resumed.

Again it was the mother-liquor or bittern from salt works on the Alleghany river, this time at Natrona and Tarentum, which furnished the bromine. In 1868, the demand increased rapidly, and soon exceeded the production from the Pennsylvania salines. Other sources were looked for and found in the Ohio river and Kanahwa salt regions. In the early spring of 1868, the first factory in this locality was erected at Pomeroy, utilizing the bitter water from the extensive salt works—the Dabney furnace. Since then factories have sprung up at all the largest salt furnaces, both in Ohio and West Virginia, now the principal seat for the manufacture in the United States.

The preparation of bromine is conducted as follows: The bittern, or

mother-liquor from the brine, after all the salts separable by crystallization have been removed, contains the bromine in combination with certain metallic bases, such as magnesium and calcium.

Acted upon by sulphuric acid, the bromine is displaced from its combination in the form of hydro-bromic acid, which, with the oxygen generated from binoxide manganese, chlorate of potash, chromate of potash, etc., and sulphuric acid, yields bromine and water.

The bromine is liberated as a gas by means of heat applied to the contents of the distilling retort; the gas is evolved and escapes from the retort through a leaden or earthenware cooler, in which it condenses to a liquid and as such discharges into the receiver.

The distilling retort is generally a sandstone vessel, holding from 100 to 300 gallons. Dr. Alter, in his first experiments, used earthenware made with a mixture of pulverized coke. Other material has been proposed and used, such as fire-clay, wood and lead.

The following figures will show the increase of production from 1867 to 1873.

Estimated Yearly Production.

In 1867	from	10,000	to	15,000	pounds.
" 1868	"	35,000	"	40,000	"
" 1869	"	65,000	"	70,000	"
" 1870	"	100,000	"	110,000	"
" 1871	"	125,000	"	130,000	"
" 1872	"	160,000	"	165,000	"
" 1873	"	170,000	"	175,000	"

Until 1870, the total production was consumed in the United States. In that year the first parcel was exported to Germany. Since then, more or less, every year, finds its way to the European market. Of late the production has far exceeded the demand.

Over-production has so depressed prices that there is very little encouragement for those already engaged in the business, and no inducement for manufacturers to start additional factories, as may be inferred from the following particulars given by one of our correspondents:

"At this period the business had passed into the hands of so many that it was feared it was entirely ruined, and to prevent further spread, I erected an extensive factory on the Kanahwa river, seventy-five miles distant from this point, for the purpose of making the bittern of this valley tributary to my business. My business now includes large factories at the Valley City Furnace, Hartford City, West Virginia; at

the German Furnace, Germany, West Virginia; at the Hope Furnace, Mason City, West Virginia; at the Snow Hill Furnace, Kanahwa, West Virginia.

"The basin of the Ohio is eight miles wide, and on it are located the above-named furnaces. From the bittern of this district, and not from any other, can pure bromine be made at a price that will compare with present rates, as you are aware the manufacturers at Saginaw river and other Western points have suspended operations and torn down their factories.

"The Kanahwa basin is a continuation of the Ohio basin, dipping with the coal in an easterly direction. In the manufacture we boil the bittern (or refuse water after extracting the salt) in iron pans, then transfer it to stone or fire-clay stills and treat it with sulphuric acid, chlorate of potash or manganese, and by means of coolers and other apparatus extract the bromine.

"When in full operation there are:

4 factories	producing	say	75,000	pounds	per year.
1 factory	"	"	25,000	"	"
1 "	"	"	15,000	"	"
1 "	"	"	7,000	"	"
4 factories	"	"	100,000	"	"

"It is likely that next year these factories will not be worked up to more than one-half or two-thirds capacity, on account of overproduction of salt."

Present prices are very low for bromine and its preparations, and manufacturers have had only unsatisfactory results for some time past. When we consider the current quotations for bromine and bromides, and contrast them with the rates of ten or fifteen years agos we have a very good illustration of domestic competition reducing profits to mere nominal figures. At present, bromine and the preparations of bromine are selling at very little advance over cost.

ON A DRUG SUBSTITUTED FOR CHIRETTA (*OPHELIA CHIRATA*, GRISEBACH).

BY PROFESSOR BENTLEY.

Honorary Member of the Pharmaceutical Society of Great Britain.

A few days since a sample of Chiretta was forwarded to me by a well-known wholesale firm in London, stating that its genuineness had

been called in question, and asking my opinion as to whether it really was the true herb.

Upon a superficial examination I found the sample to answer in color and general appearance, as stated by the sender, the description of the official Chiretta pretty closely; but a practised observer would soon observe differences, more especially in the form of the stems of which the sample was composed, their less scarred character, and the less compact arrangement of the flowers and fruits, than in the true Chiretta.

When more carefully examined, several marked distinctive characters were noticed, the most important of which, in order to render them more evident, I have tabulated with the characters of true Chiretta as follows:

SPURIOUS CHIRETTA.	TRUE CHIRETTA.
Stem obscurely quadrangular below, its four angles being each marked by a somewhat prominent border or wing; and very evidently quadrangular and winged above.	*Stem* round below and throughout nearly its whole length; and very faintly quadrangular above.
Leaves when present, sessile, narrow, and tapering to each end, that is, somewhat lanceolate in outline.	*Leaves* embracing the stem, broad at their base, and tapering upwards into a long acute point, that is, ovate or cordate-ovate in shape, and acuminate-pointed.
Scars left by the fallen leaves, not very prominently marked, in consequence of the slight and comparatively narrow attachment of the leaves.	*Scars* left by the fallen leaves, very evident, opposite to each other and almost encircling the stem.
Flowers arranged in elongated loosely aggregated clusters, or cymose panicles. Flowers also larger and longer than those of true Chiretta.	*Flowers* arranged in less elongated cymose panicles, that is, more compact, and more umbellate.
A transverse section of the stem exhibits a comparatively thick woody ring on the outside; and with the centre hollow, or presenting but faint traces of pith attached to the inner surface of the ring of wood.	*A transverse section of the stem* exhibits a comparatively thin woody ring, enclosing a large continuous easily-separable pith, which is yellowish in color.

Such are the general distinctive structural and morphological characters between the spurious and true drug, which I have purposely given in as practical a form as possible in order to be readily available. Another very marked difference is afforded when we make an infusion of the two drugs. Thus, the taste of the infusion of true Chiretta is in-

tensely bitter; and that of the spurious drug, although bitter, far less intensely so than that of the official drug. An infusion of true Chiretta has also a somewhat greenish tint, while that of the spurious drug has a distinctly yellowish-brown color.

The question of the botanical source of the spurious drug now arises. It is well known that in the Indian bazaars several plants are known by the name of Chiretta, besides the true drug, and are used for the same purposes as it. Thus, Royle, many years since, in his "Illustrations of the Botany of the Himalayan Mountains," page 277, stated that *Ophelia angustifolia*, Don, is so used in Northern India, where it is called *Puharee* (hill) *Chiretta*, to distinguish it from the true or *Dukhunee* (Southern) *Chiretta*; and he adds that *Exacum tetragonum* is also called *ooda* (that is, purple) *Chiretta*.

At least three other species of *Ophelia*, namely, *O. elegans*, Wight, *O. densifolia*, Grisebach, and *O. multiflora*, Dalzell; two other species of *Exacum*, as *E. bicolor*, Roxb., and *E. pedunculatum*, Linn., may be also enumerated; as well as *Slevogtia orientalis*, Grisebach, which is known as *Chota Chiretta* (small Chiretta), as being employed in India like true Chiretta.

The above mentioned plants are all derived from the same natural order, Gentianaceæ, as that yielding the true Chiretta; but besides these, as mentioned by Royle, Waring, and other writers, another powerful Indian bitter—that is, *Creyat* or *Kariyát*, derived from *Andrographis* (*Justicia*) *paniculata*, Wall., of the natural order, Acanthaceæ, is also often confounded in Southern India with the true Chiretta.

It is somewhat surprising, considering the number of substitutes for the true Chiretta which are thus known in India, that some of them should not have found their way, accidentally or intentionally, into the English market; but no English writer of repute on the Materia Medica has hitherto noticed any such substitution. Even Flückiger and Hanbury, in their recently-published "Pharmacographia," say, page 393: "We have recently examined the Chiretta found in the English market, but have never met with any other than the legitimate sort." Moreover, beyond the case of false-packing described by Mr. E. A. Webb, in the "Pharmaceutical Journal," vol i, third series, page 367, in which the roots of *Rubia cordifolia*, Linn. (*Munjeet*), had been enclosed in bundles of Chiretta, I know of no published case of adulteration or substitution of true Chiretta in this country.

The botanical source of the present substitute of Chiretta is, there-

fore, one of some interest and importance, and, upon examination, I believe it to be the sort of Chiretta which, as stated above, is called in India *Puharee* (hill) *Chiretta*, and which is derived from *Ophelia angustifolia*, Don.; or if not from this plant, most certainly from a species of *Ophelia* very closely resembling it. Thus, it may be derived from *Ophelia pulchella*, Don. It is, therefore, closely allied to the true and official Chiretta, which is obtained from *Ophelia chirata*, Grisebach, and it possesses in some degree the bitter tonic properties of that drug. It is satisfactory to know that such is the case, and that, therefore, its use can lead to no serious consequences, but that as it is very inferior in its bitter tonic properties to the genuine drug, it ought not to be substituted for it. I have, therefore, deemed it advisable to describe it at once.—*Pharm. Journ. and Trans., Dec.* 19, 1874.

DETERMINING THE VALUE OF VEGETABLE AND ANIMAL OILS.

Nowhere in the domain of chemistry do we find such a large and important series of compounds, so similar in chemical and physical properties, and so difficult of separation when mixed, as the fatty oils. Watts enumerates forty-nine vegetable oils, eleven fish oils, and five animal oils, making a total of sixty-five oils, and yet his list is defective. Although possessing such a general family resemblance, they differ enough among themselves to cause a considerable difference in price, and hence cheaper oils are used to adulterate the more valuable. To recognize any of these oils when unmixed is not particularly difficult, but to detect the presence of a few per cent. of one oil in a large quantity of some other oil is more difficult, and to determine the kind and quantity of the adulterating oil is almost an impossibility. Because of the commercial value of an accurate and reliable method of detecting adulteration in oils, much attention has been paid to this subject, but long and patient researches have, as yet, been only partially rewarded. In a communication to the Chemical Section of the Philosophical Society of Glasgow, Mr. J. J. Coleman, F. C. S., gives a detailed account of the principal methods now in use for detecting adulterations in oils, a few of which we give below.

The late Prof. Calvert constructed a table showing the result obtained by treating oils with acids and alkalies of various strengths. Twelve reagents were employed and one hundred and eighty reactions and colors produced are given, which he had observed in experimenting

on fifteen different oils. Cotton-seed oil and olein from tallow are omitted, as well as fifty other of minor importance.

Heidenreich, Penot and Marchand have also proposed color tests from the reaction of pure sulphuric acid on oils, but, like those of Calvert, they are open to doubt and uncertainty, the coloration often depending on the accidental impurities of the oil.

There is a great difference in the amount of heat produced on mixing one part of sulphuric acid with three parts of oil; the gain in temperature is 100° where rape-seed oil is used, as compared with 68°, when olive oil is experimented upon. A method based on this principle was suggested by Marmene and elaborated by Fehling; it is easy of execution and interesting in results.

The relative viscosities of the fatty oils is determined by the time required for a given quantity of each oil to flow from a pipette which is heated to 120° F. by being surrounded by a glass tube into which steam is passed. In an experiment made by Mr. Coleman, German refined rape required 8½ minutes; olive, 8¼ minutes; tallow, 7½ minutes; lard oil, 7 minutes; cotton seed, 7 minutes; sperm, 5 minutes.

Spontaneous combustion ensues when a handful of cotton waste is imbued with oil and placed in an air bath at 130° to 200° F. Boiled linseed required 1¼ hour; raw linseed, 4 hours; lard oil, 4 hours; refined rape, about 9 hours. Mr. Gellatly found that an admixture of 20 per cent. of mineral oil retarded combustion, and 50 per cent. prevented it entirely.

There are three practical mothods of judging of the drying properties of oils: 1. Nitrate of mercury, which indicates by the consistency of the mass subjected to the reaction. Resin oil, mineral oil, and the drying oils proper, refuse to solidify. 2. Comparing a sample under examination, heated in a shallow capsule to 200° F., with a light quantity of oil known to be pure. 3. Imbuing thick white blotting paper with the oil under examination, and comparing by a similar experiment with oil known to be pure, say at a temperatnre of 150° or 200° for some hours, or at ordinary temperatures for some days.

The specific gravity of oils has been carefully determined, and is of some consequence. To be of value the specific gravity should be carefully taken at a temperature of 60° F. The oleometer should be marked with ordinary specific gravity degrees, water being 1,000, and the space allowed on the stem, for each degree should not be less than

1-10 of an inch. As a rough rule, 1° of gravity may be subtracted for every 2½ per cent. excess of temperature above 60° F.

The presence of mineral and resin oils in a mixed oil must be the first point proved, and when it does exist, it increases the difficulty of testing, for we have no easy method of separating them without actual destruction of the fatty oils. Saponification is not efficient, for mineral oil unites with the soap produced, forming an emulsion which does not separate after standing for months. Perhaps a lime soap might be prepared, pulverized, and the hydrocarbon extracted by some volatile solvent, but the most satisfactory method would be an ultimate chemical analysis.

In practice, however, mineral oils can be easily detected by two characteristic tests: first, the fluorescent properties it imparts to all animal or vegetable oils; second, the strongly-marked aromatic burning flavor it communicates to mixtures containing it. The first-mentioned property is brought out by smearing a metallic surface, such as tin plate or steel, with the oil, and then viewing it at different angles in the open air or sunlight.

In examining a dark-colored oil, it may first be necessary to refine the sample by successive treatments with concentrated sulphuric acid and weak soda solution or lime water. As small a quantity as 2½ per cent. may be detected by the bluish color noticed on viewing the oil at certain angles and by tasting it.

The absence of resin oil must also be proved. Nitric acid is said to be a good test, as the color developed is much greater than in pure oils. Sometimes it may be detected by the smell. The presence of 10 per cent. of resin or mineral oil in non-drying oils delays their solidification with the nitrate of mercury test.

Oils may be classified according to their commercial value. The first class embraces only sperm oil. The tests recommended by Mr. Coleman, for adulterations in this oil, are five in number:

1. Examine for mineral oil.

2. Examine into its drying properties by exposing some of the oil for some hours in a thin layer to 200° F.

3. Notice that other fish oils darken much more notably than sperm oil when shaken up with dilute sulphuric acid.

4. The most likely adulterant is African fish oil, which produces intense heat when mixed with concentrated sulphuric acid; thus, a mixture of 1 part acid and 4 parts oil develops about 112° of heat, against

a development of upward of 250° with African fish oil. The specific gravity of African fish oil is said to be about 0·866, and it is a very bad lubricant. Other adulterating oils may also be detected by this test.

5. That, as the use of sperm oil is dependent upon its viscosity, an accurate test thereof, in a suspected sample, may be useful.

Class II comes next in value to sperm oil, viz., the oleins obtained by pressure from animal fats, known in the market as tallow olein, lard olein and neatsfoot oil. Lard and tallow oils should have a specific gravity of 0·915. If the oil is heavier, it may contain fish oils, seed oils, olive oils or cocoa-nut olein. Olive oil, cocoa-nut oil or fish oils can be detected by the smell, color, taste and Calvert's tests, so that the real difficulty lies with seed oils, one of which, rape oil, is nearly of the color, and exactly of the specific gravity, of animal oleins. If a sample of animal olein be too heavy, it probably contains some partially-drying oils like cotton seed, which range from ·920 to ·930. Those seed oils which cannot be detected by variations in the specific gravity are rape, henbane-seed, horse-chestnut and plum-kernel oils. The last three may be disregarded. The processes for the detection of rape are the following:

1. Heating to 400° F. and allowing to cool to 90°. Tallow and lard oils are rendered odorless, while the peculiar penetrating smell of rape oil is developed.

2. One part, by weight, of the oil is mixed with 3 parts of concentrated sulphuric acid, and the heat developed is compared with the heat developed by a similar experiment made with pure oil.

3. The nitrate of mercury test is said to indicate the presence of even 10 per cent.

Finally, lard oil is distinguished from tallow olein by difference of viscosity.

Class III embraces the olive oils. The adulterations to be sought are drying oils, fish oils, mineral and resin oils. The specific gravity of olive oil is 0·917. Rape oil would make it lighter, and cotton-seed oil heavier, but a proper mixture of the two could be adjusted exactly to the specific gravity of olive oil. Fish oils being proved absent by Calvert's tests or by the smell, the following tests are used for seed oils:

1. The well-known nitrous acid or nitrate of mercury test.
2. The characteristics of the amides produced by liquid ammonia.

3. Fehling's test of the rise of the temperature produced by mixing with concentrated sulphuric acid.

4. The characteristics of the action of solution of carbonate of potash on the oil.

Class IV.—Rape oils are the border-land between drying and non-drying oils, and are employed both for burning and lubricating. The specific gravity varies from 0·912 to 0·916. It is quite likely to be adulterated with cotton-seed oil, which [1] increases the specific gravity (mineral and resin oils being proven absent); [2] it raises the freezing-point of rape oil, which is, when pure, perfectly liquid at 32° F. The other tests applicable are those for estimating the drying properties of the oil, or its tendency to gum, either by exposing on blotting-paper or in small capsules to 200° F.

Class V is represented by linseed oil, the drying oil proper, of specific gravity 0·937 at 60° F. Mineral and resin oils must be carefully looked for, and, in their absence, fish oils are easily detected by smell or Calvert's tests. Cotton-seed oil may be recognized [1] by decreasing the specific gravity, [2] materially raising the point of solidification, [3] decreasing the drying properties, which can be proved as above indicated.

Class VI.—Fish oils have a commercial value inferior to the other oils, because of their odor; hence they are not much liable to adulteration. They may, however, be mixed with each other, some varieties being much cheaper than others. The points to be observed are, [1] looking for mineral and resin oil, [2] examining the drying properties of the sample, [3] examining the viscosity.

Oleographs, or the figures formed by oils dropped on pure water, do not seem to have been studied by Mr. Coleman. With care and practice they may be made of considerable value in testing oils quickly and easily.—*Jour. of App. Chem., Dec.*, 1874.

THE USES OF AGAVE AMERICANA.

BY JOHN R. JACKSON, F.L.S.,
Curator of the Museums, Royal Gardens, Kew.

Some attention has lately been drawn to the common Agave (*Agave Americana*) on account of its supposed efficacy as an anti-scorbutic. As noticed in this journal last week, General Sheridan, whose name is as a household word in the United States, is said to have used the juice with great success amongst his men, who were suffering from scurvy

in a small isolated spot on the Texas border. The disagreeable smell of the juice, which has been compared to that of putrid meat, causes a person at first to turn from it in disgust, but after awhile the odor is overcome, and a liking for it takes the place of the previous dislike. From the compulsory doses of this juice taken by Sheridan's small army, the effectual stay of scurvy is attributed. In Mexico the plant is very highly valued for its medicinal properties, the belief in which, amongst the Mexican peasants, has been handed down from a remote period of history. Thus, the gum found in the lower part of the stem is used as a cure for toothache, whilst the juice of the leaf is applied to bruises and contusions. This juice forms a large article of internal trade in Mexico. The plant is known as the "Maguey," or "tree of wonders," and even at the present time, in some parts of Mexico it is considered one of the most important productions of the soil. The discovery of the juice of the plant as an intoxicating beverage is said by some to date back to the days of the early inhabitants of the Mexican continent. In an interesting report on the history, culture and trade in the plant furnished to the Foreign Office some short time since, we read that more modern tradition has fixed the epoch of its discovery as having been about the year 1045–1050, under the reign to the eighth King of the Taltec tribe, named Tepancaltzin, at whose court a relation of his, named Pepantzin, presented himself, and informed him that his daughter had discovered that a sweet and aromatic liquid sprung forth from the Metl plants in her garden. The King ordered her into his presence, and she brought him 'Tecomati,' or vase of the liquid she had discovered, which he tasted, and then ordered her to bring him more; and, subsequently, becoming enamored of the maiden, whose beauty was great, and whose name was 'Xochil,' or flower, he married her; of which union a child was born, to whom was given the name of Meconetzin, or 'Son of the Metl;' or Maguey, in allusion to the circumstance which was the origin of his parent's first interview."

Leaving its very remote history, there seems "no doubt that the divers properties of the plant itself were known many years before the discovery of Mexico by the Spaniards, for not only is it mentioned as furnishing thorny scourges, as well as whips made of the fibres of the plants' leaves for the multitudes who annually met to celebrate a festival in honor of the god, Texcatlipuca, in the great Temple of Tenochtitlau (the modern Mexico), but the use of the juice became so general that many severe laws against the drunkenness resulting from

it were issued by the ancient Mexican kings; mention being made of a widow who sold it promiscuously having been put to death by order of the king, Netzahualcoqatl: only women suckling infants, old people and soldiers upon the march being allowed to drink it." Several varieties of the plant are cultivated in Mexico, each being known for the greater or lesser quantity of the juice it produces, its color, whether yellow or greenish, its thickness, or sweet or bitter taste. These variations, as to the properties or consistency of the juice depend a great deal upon the nature of the soil, and of the range of temperature; thus it is the least muciliginous in a somewhat clayey soil, and is cultivated with the greatest success at an elevation of about 9,000 feet. Though the plant is cultivated very largely in many parts of Mexico, it is in the plains of Apam that the greatest Agave district is situated; more than 600 square leagues are here almost covered with the plant, either in its wild or cultivated state. The mode of propagation is by removing the young plants or suckers from the old ones, and after spreading them on the ground for two or three months to partially dry them, so that they may not rot, instead of starting into growth, they are planted in rows, and barley sown between them, which is considered rather to assist their growth. In a good soil the agave plant requires a period of from ten to twelve years before attaining maturity. "The plant upon attaining its full growth, which is easily discernible by its height and the prodigious extension of its leaves, brings forth a tall stem crowned with yellow flowers, and then a certain amount of pruning becomes necessary so as to form a kind of reservoir in the centre, and what is technically termed a "cara," or "face," around it, so as to cause the juice to flow towards the same spot, and to facilitate the extraction of it by removing some of the interior leaves and thorns."

To collect the juice, or "pulque," as it is called, as soon as the leaves begin to turn yellow a small concave aperture is scooped in the core of the plant, and an elongated tube-like gourd, the air in which is exhausted by suction, is thrust into the aperture; each laborer carries with him, strapped to his back, an impervious sheepskin bag, into which the gourd tube is emptied as soon as it is filled. From 50 to 60 plants are usually alloted to the care of one man, and from these he extracts, on an average, about 110 to 120 arrobas of juice, called honey-water, per week. After each plant has been exhaused of its juice,—and often two collections are made in one day—the apertures or incisions are

carefully covered up with leaves and stones to preserve them from the attacks of cattle, dogs and a kind of jackal, common in the country. The "pulque" manufactories on the plantations, to which the juice is removed after collecting, consists of long, covered and well-ventilated galleries, in which are rows of vats made of bullocks' hides stretched over a framework, and covered with lime; the juice is emptied into these vats, and allowed to stand for about thirty-six hours, when fermentation ensues, and its yellow transparent color changes into a milky white. After fermentation, the juice or pulque is ready for use, and is then sent off to the City of Mexico, Puebla, or the nearest market within a radius of 20 to 30 leagues; the pulque very commonly undergoing a considerable dilution of water by the way at the hands of the carriers who convey it in sheepskin bags upon mules or donkeys. The quantity of it which thus annually enters the City of Mexico alone may be estimated, on an average, to be about 2,000,000 arrobas, and that which enters Puebla to be about 500,000 arrobas, aud the cost of transport alone has been calculated, taking the approximate average of one real as that of each arroba, to represent the sum of $312,000; not less than 20,000 mules and donkeys laden with the beverage entering the city every month by the gate leading to the Maguey districts. To the quantity paying duty must also be added a considerable quantity which is smuggled in, and including this it may be calculated that about 50,000,000 bottles are now annually introduced into the City of Mexico.

"From a chemical analysis of pulque it is found to contain, in different proportions, according to its quality, alcohol, mucilaginous fecula, sugar, water and potash. It has been observed that the drunkenness produced by it under its different varieties is of a less violent description than that produced by another common beverage of the country, 'chinguirito' (brandy made from the sugar-cane), and that *delirium tremens* is rarely produced by the immoderate use of the former, though often by that of the latter. It is also affirmed that the pulque drinker is commonly long-lived, whilst the reverse is the case with regard to persons addicted to 'chinguirito,' and that the former beverage, notwithstanding its somewhat acid taste, is, probably on account of the fecula contained in it, peculiarly beneficial to women suckling their infants, and to those people whose constitutions require a wholesome stimulant."

Besides this pulque which, as we have seen, is the chief product of

the *Agave* in Mexico, a strong spirit is prepared from the sap, known as mezcal, also a kind of brandy of 80 degrees of strength, a sweet, thick substance resembling honey, a concentrated gum used in medicine, brown sugar, loaf sugar, sugar candy, and vinegar of very excellent quality, so that the *Agave*, the value to us of which is mostly for its fibre, is, in fact, one of the most important economic plants of Mexico. —*Pharm. Journ. and Trans.*, *Dec.* 12*th*, 1874.

POISONING BY CYPRIPEDIUM.

BY H. H. BABCOCK.

Working botanists have so often been poisoned by *Rhus toxicodendron* that many of them have come to regard it as their special bane.

In the five seasons commencing with 1868, I was particularly careful not to touch this poisonous plant, not to pluck a specimen growing in its immediate vicinity, nor to receive from the hands of another person a freshly-gathered plant, for fear it might have come in contact with *Rhus*. In spite of these precautions, in the latter part of May or first of June in each year, I was poisoned so severely as to be confined to my room for several days. In June, 1872, after gathering many specimens of *Cypripedium spectabile*, I observed that my hands were stained with the purplish secretion of the glandular hairs with which its stem and leaves are densely clothed, and shortly after experienced a peculiar irritation about my eyes. The next day my whole face presented the appearance of a severe case of *Rhus* poisoning. On reviewing my notes of the previous years, I found that in each season the poisoning had appeared on the day after I had collected *Cypripedium spectabile* or *C. pubescens*. In 1873 and 1874, I collected more extensively than ever before, but suspecting that my previous sufferings had been caused by these two species of *Cypripedium* rather than the *Rhus*, took no unusual pains to avoid the latter, but refrained from touching either of the former with the bare hand. The result was what I had expected, for I escaped entirely the poisoning that I had begun to regard as inevitable, and am now convinced that upon myself, at least, *Cypripedium spectabile* and *C. pubescens* are capable of producing effects similar to those caused by *Rhus toxicodendron*. Is it not possible that others, also, have wrongly attributed to *Rhus* the annoyance caused by these plants hitherto considered inoffensive? A decisive answer, either affirmative or negative, must depend upon the results of future experiment. Who will undertake it?—*The Pharmacist*, *Jan.*, 1875.

Chicago, December 15

VARIETIES.

TOOTHACHE DROPS.—The "Dental Cosmos" for November, 1874, publishes the following formulas:

1., ℞.—*Chloroform*,
Sydenham's laudanum, āā ʒii
Tinct. benzoin, ʒi

2., ℞.—*Creasot*,
Chloroform, āā ʒii
Sydenham's laudanum, ʒiv
Tinct. benzoin, ʒi

3., ℞.—*Oil of Peppermint*,
Rhigalene,
Chloroform, āā ʒiii
Camphor, ʒii

4., ℞.—*Chloral*,
Camphor, āā ʒi
Morphia, gr. ii
Oil of peppermint, ʒii

PREPARATION OF KOUMYS.—5 quarts of fresh milk, ¼ lb. grape sugar, and fresh beer-yeast of the size of a hazel-nut, are mixed, heated upon a slow fire to 25° R. (88° F.), removed from the fire for a short time, then again heated as before, at once filled into champagne bottles to within an inch of the neck, and these well corked. The bottles should be agitated every fifteen minutes during the next forty-eight hours. If well prepared, Koumys must effervesce like soda water.—*Allg. Med. Centralzeitung*, 1874, *p.* 1108.

QUOTATIONS FOR OPIUM HERE AND ABROAD.—Reference to quotations for opium shows the rather singular fact that in this country prices are named for the article as being of *one* grade only, while abroad they are stated *according to quality*.

We would remark that it is a great mistake to suppose that all the opium that comes here is of *one* uniform grade—such is not the case—hence the singularity of not being governed in quotations by quality.

Every experienced druggist is well aware of the great difference existing in the opium sold in the United States; some being very superior and well adapted for uses of the apothecary and manufacturing pharmaceutist, while some is quite inferior and fails to give satisfactory results.

We desire to call attention to this point, believing it to be one deserving of notice, and feeling quite sure that every one interested, from the importer down to the consumer, would be best served by selling and buying at rates based upon intrinsic value.

The following figures illustrate the statement just made, as to the singular difference in quoting opium here, as compared with Smyrna and London.

We select a Smyrna letter of November 7, 1874, a London letter of November 7, 1874, and a New York broker's list of November 7, 1874:

"*Smyrna*, Nov. 7. Sales this week—

400	chequees	Chicantee opium,	@ 196 to 198P.
400	"	" "	@ 200P.
800	"	"	@ 210P.

36	baskets	old Karahissar opium,	@	252P.	
10	"	current quality "	@	252P.	
1	"	" "	@	253P.	
24	"	" "	@	254P.	
2	"	Yerli opium,	@	258 to 260P.	
5	"	selected Karrahissar opium,	@	268P.	
4	"	Tschal opium,	@	286P.	
2	"	Bogaditsch opium,	@	348P."	

Now, taking the extreme figures, or say 200P for Chicantee, and 340P for Bogaditsch opium, we have a difference in prices, based on difference in quality, of 140P per chequee, equal to fully $4 per pound gold.

"*London*, November 7. Chicantee, 25*s.* to 26*s.* Old, 31*s.* Prime new trade, 33*s.* Finest soft, 40*s.*"

Showing a difference of 15*s.*, or about $3.75 gold per pound between inferior and finest grade of opium in the London market.

Turning to the figures quoted on a broker's list published in New York—and such lists are considered to fairly indicate the prices current—we find—

"*New York*, November 7. Opium, $8.60 gold, in cases. Jobbing, $9.45 to $9.47½ currency."

And this is all it says.

Taking Smyrna quotation of same date, and selecting from the list, say Yerli opium, @ 258 to 260P, which would cost fully $8.50 per pound gold, duty paid; or London prices and base, say on 32*s.* for good trade quality, equal to about $9 gold, duty paid, it seems somewhat strange, especially in view of short crop, prospective high prices, etc., that a good opium could be afforded in this country, through brokers, and hence subject to a brokerage, at $8.60 gold, and we cannot see any inducement to *import* opium, of prime quality, such as "Yerli," "Karahissar," or even "current quality," if no better price than this can be obtained.

But this view is no more discouraging than when we come to consider the margin left to the party who buys "in cases" and jobs "as wanted." Thus—

"*New York*, November 7. Opium, $8.60 gold, *in cases*. Jobbing, @ $9.45 to $9.47½ currency."

Now, the large dealer, who bought opium about November 7, paid, we will presume, say $8.60 gold per pound, *in cases*, and we may assume *paid promptly*. The gold rate was 1.10, hence it cost him $9.46 per pound currency. He would, in all probability, be confronted with the quotation for "jobbing parcels, say $9.45 to $9.47½ currency," should he have an order for ten pounds, and be expected to meet these figures, and thus probably have *to sell not only at or below cost, but wait for his money* the same length of time as for other merchandise.

We think this peculiar position is one that must force the conclusion upon any mind that transactions in opium, so far as this country is concerned, are not very profitable to dealers who are expected to buy and sell at the same price, nor to importers of fine grades, as the superior value of such seems to be entirely ignored.—*Circular No. 24, Philadelphia Drug Exchange.*

CAMPHORATED PHENOL.—Bufalini, in "Campagna Med." ("London Medical

Record") describes the combination of camphor and phenol, and gives its therapeutical conclusions.

If equal parts of carbolic acid and camphor be dissolved in alcohol, and the mixture be allowed to stand for thirteen hours, a yellowish, oily stratum arises to the surface. This will not mix with the water or liquid, nor is the camphor precipitated by the alcohol. This substance is called camphorated phenol. It is best prepared as follows: One part of carbolic acid and two of camphor are mixed in a vessel and allowed to stand for some hours. A reddish-yellow oily liquid will be formed, which is to be purified by washing with water. The properties of this combination are reddish-yellow color, oily appearance, smell of camphor, insoluble in water, but soluble in alcohol and ether. From considerable experience in its use, Bufalini concludes:

(1) Camphorated phenol produces the same effects as carbolic acid, but is less dangerous. It may be used both externally and internally, viz., in enteric fever, etc.

(2) It has the power of modifying unhealthy wounds and of destroying the parasites which are present in certain diseases, as septicæmia, typhoid fever, etc.

(3) The medical use of camphorated phenol is to be preferred to that of carbolic acid, as the former does not present the disadvantages of the latter.

(4) Camphorated phenol, when applied to wounds does not irritate them or act as a caustic or disorganizing substance on them, and may be used in large doses, without producing symptoms of poisoning.—*Kansas City Med. Jour., Nov.*, 1874, *from Det. Rev. of Med.*

Refined Camphor.—Crude camphor, as brought to this country, is refined here by being introduced together with quicklime into cast-iron vessels, which serve as retorts, over which are placed covers of sheet-iron connected with the lower vessels by a small aperture.

A number of these stills are placed in a large sand bath, and, after the melting of the camphor within them, kept at a uniform temperature that the process may go on quietly. The quicklime serves to retain the moisture that otherwise would interfere with the condensation of the pure camphor. This takes place under the shelf upon which the cone stands, the vapor, when in excess, passing into the loosely affixed cones of sheet-iron, care being taken to keep the hole open.

A great deal of attention and experience are requisite to successfully refine camphor, but the process is now well understood in this country as well as in Europe, and what is sold in this market is refined here, and is of satisfactory quality and appearance.—*Philadelphia Drug Exchange, Circular No.* 20.

The Cultivation of Castor Beans.—A California letter says of this crop:—"The method of gathering and preparing for market is as follows: Every day the ripe spikes are gathered by hand, put in sacks, and hauled to the 'popping-ground,' which is a space of about an acre, made smooth and hard, like an old-fashioned buckwheat threshing ground. Here the spikes are spread, and during the day they pop open, from the heat of the sun, throwing out the beans. Each morning the straw is raked off, the beans shoveled up, cleaned in a fanning mill, and sacked, ready for market. By the time the field is once picked over it is ready for another picking, like cotton, and the season, commencing in August, is not yet over. The yield is estimated at fifteen hundred pounds per acre, worth four cents per pound, or a gross yield of $60 per acre. The expense of cultivation, etc., is estimated this year at one-half this amount, but is greater than it probably will be another season, owing to inexperience and preparing new land. There is probably no crop so easily raised that will yield so large a return."—*Med. and Surg. Rep., Nov.* 7, 1874.

EXPECTORANT PROPERTIES OF APOMORPHIA.—It is pointed out by Dr. Jurasz, in the "Centralblatt," for July 4th, that this drug has been proved to be a useful expectorant in all the cases in which it has been used, comprising cases of tracheitis and bronchitis, and also inflammation of the larger and smaller bronchial tubes. The tenacious sputa were in all cases readily dislodged, and their discharge was greatly facilitated. The rhonchi, at first dry, blowing and whistling, became moist, and always diminished. The remedy was administered according to the following formula: Hydrochlorate of apomorphia, 1 to 3 centigrams (0·15 to 0·46 grains); distilled water, 120 grams (4 ounces); hydrochloric acid, 5 drops; simple syrup, 30 grams (about 1 ounce); a tablespoonful to be taken every two hours. The amount of apomorphia in each dose was thus from 1 to 3 milligrams (0·15 to 0·46 grain). The patients stated that the first spoonful caused slight uneasiness, which, however, did not follow the administration of the second dose. The hydrochloric acid was added to remove the tendency of the apomorphia to assume a green color when in solution.—*Med. and Surg. Reporter, Oct.* 24, 1874.

MINUTES OF THE COLLEGE.

At a stated meeting of the Philadelphia College of Pharmacy, held at the College hall on the afternoon of December 28th, 1874, seventeen members registered their names. Dillwyn Parrish, President, occupied the chair.

The minutes of the last meeting were read and approved.

The minutes of the Board of Trustees since the semi-annual meeting in September, were also read by Wm. C. Bakes, Secretary of the Board, and, on motion, adopted.

Joseph P. Remington, on behalf of the Committee on Deceased Members, read an interesting memorial of our late respected fellow-member, Charles Ellis, which was accepted, and referred to the Publication Committee to be inserted in the "Journal."

[The Memoir will be published in the next number of the Journal.]

The reading of this paper called forth remarks from Dillwyn Parrish, Charles Bullock, Thomas S. Wiegand and James T. Shinn, the purport of which was, that the College had sustained a great loss in the death of Charles Ellis, as he had been one of its earliest advocates and supporters, and continued so throughout his life. They all bore witness to his uniform urbanity and kindness to all who were in any way connected with him in business or in social life.

A letter was received and read from James P. Wood, resigning his membership in the College, which was, on motion, accepted.

A bust of Benjamin Franklin, made from stearic acid, was presented to the College by Henry Bower. On motion, it was accepted, and referred to the Curator to be properly placed in the hall.

The thanks of the College were ordered to be presented to Mr. Bower for his acceptable gift..

There being no further business, on motion, adjourned.

WILLIAM J. JENKS, *Secretary.*

MINUTES OF THE PHARMACEUTICAL MEETING.

The fourth meeting of the session was held January 19th, 1875, Dr. Wilson H. Pile in the chair; number in attendance, forty-five. The minutes of the previous meeting were read and approved.

J. T. Shinn presented to the library, on behalf of Thomas H. McAllister, four volumes of the "American Journal of Pharmacy," and a copy of the General Index published in 1850, which were received with the thanks of the College.

Prof. Maisch, from the collection of the late Prof. Procter, presented *Penghawar Djambi*, portions of the stipes, with the hair-like chaff still attached, of ferns from the East Indian islands, the hairs being used as a hæmostatic, acting mechanically; also, from Dr. J. W. Eckfeldt, a portion of the large root of *Populus monilifera*, from Delaware County, Pa., where it is grown as a shade-tree. It is very evident that the false cotton-root bark, described in the January number of the "Journal," is not derived from this species.

R. V. Mattison presented a handsome specimen of true cotton-root bark, from Wallace Bros. & Stephenson, of Statesville, N. C.; and Mr. Blair, six samples of cotton-root bark, one of which was from Boston, being the true root-bark, with some stem-bark; one from Baltimore, similar in appearance; one from New York, almost free from stem-bark, and three from Philadelphia, one of which was in fine powder, another cut and containing considerable stem-bark, while the third was mixed with plenty of wood.

Three samples of fluid extract of cotton-root bark were shown by Mr. Blair; one from a well-known house in this city, and another from his own store, made one year ago. Both had the characteristic red color of this fluid extract, while the third was more of a greenish-brown color, caused by heat being used in a part of the process, which seemed to entirely destroy the red color.

Prof. Maisch had prepared tinctures of both the true and false bark, that of the latter being destitute of the peculiar red color. David Preston had prepared the fluid extract, and two samples were shown, both being of the characteristic red color.

Dr. A. W. Miller presented specimens of glucose, of American manufacture. Commercially, the term glucose is applied to the liquid form, and grape sugar to the solid. The samples shown are both of good quality, and will compare favorably with the imported article. They are made from corn starch, by the well-known process with sulphuric acid. Glucose is largely used by brewers as a substitute for malt. A very handsome specimen of white grape sugar, of American manufacture, was shown, and stated to have been made from wheat starch.

J. L. Lemberger, of Lebanon, Pa., presented yellow beeswax, of unexceptional quality, purified, by himself, by filtration through paper. With proper arrangements, fifty pounds of wax may readily be filtered in a day.

Dr. A. W. Miller called attention to what he believed to be pure oil of Ceylon cinnamon, obtained by him through a reliable source, the price being much beyond the ordinary quotations for this oil.

The Chairman asked for information as to the difference between light and heavy oil of Ceylon cinnamon, which are quoted at different prices.

Prof. Maisch suggested the probability of the light oil, and the impure oil noticed at the last meeting (*see* "Am. Jour. Phar.," 1875, p. 37), being derived from cinnamon leaves, which are said to have an odor somewhat reminding of cloves.

Dr. Bridges exhibited a large collection of anilin colors, and Dr. Miller a specimen of anilin black, soluble in water, and writing ink made from it by dissolving 1½ ounce of the former and 1½ fluidounce of mucilage of gum arabic in one gallon of water.

The practical uses to which anilin colors had been put for coloring candies, syrups, liquors, hair-oils and the like, were commented upon by several speakers, and attention was drawn to the formulas for inks by C. H. Viedt (*see* page 64 of this number). Insoluble anilin black is used for indelible stencil inks and for calico printing. The cheaper grades of anilin colors sometimes contain arsenic, and should be used with care. Ordinary anilin red does not answer for boiled candies, being changed to a pale, dull purple; cochineal coloring is used for this purpose.

Dr. Miller exhibited specimens of a garlic, which is probably a hybrid, and entirely different from the officinal, consisting of a bud enclosed in a solid, fleshy mass, which has a strong garlicky odor.

The following note, from H. N. Wilder, on an indispensible implement for the prescription counter was read:

"The accompanying style of funnel I have been using for several years for straining mixtures. Let the component parts of a mixture be ever so clear when ready, the mixture will seldom fail to exhibit particles floating about. Straining through linen is quite wasteful and disagreeable—through the funnel the liquid passes quickly, and to the last drop. The funnel is tin, the strainer, soldered into the lower part, of brass, yet it is so short a time in contact with the liquid, that a contamination with this metal becomes quite an impossibility; however, if any fears are entertained, it may be tinned previous to soldering. The wire gauze is of the finest to be had—I think, a hundred meshes to the inch. I make it a rule, as soon as used, to put the funnel under the hydrant for a minute or two."

Other methods of accomplishing the same end were spoken of by members, as fine Swiss muslin, loose cotton in a glass funnel, etc. The Chairman cautioned against straining out precipitates which may contain the virtues of a mixture.

E. M. Boring exhibited ointment of mercuric nitrate, made by the formula of Mr. Rother, published in the "Am. Jour. Phar.," 1870, p. 419. This specimen, although one month old, and exposed in an ordinary dispensing jar in the shop for that time, still retains its citrine color, and looks as nicely as when first made. Dr. Pile said he had used this formula for some time, and excepting a little alteration in the temperature when making large quantities, had found it satisfactory. Mr. Boring also exhibited glyconin, made of five parts of glycerin and four parts of the yolks of eggs, by weight; also, two samples of emulsion of cod-liver oil, made with it. Mr. Hirsh, in the "Am Jour. Phar.", 1870, p. 155, says that it is perfectly stable, and will keep for years. The oil emulsions were made by emulsionizing four parts of oil with one of glyconin, and diluting so that the emulsions contain respectively 50 and 66⅔ per cent. of oil. The former is quite mobile, while the latter has about the consistence of a 50 per cent. emulsion made with gum arabic and sugar.

Mr. Boring exhibited coca leaves, from *Erythroxylon coca*, and the Fuller's teasel,

the mature heads of *Dipsacus Fullonum*, Mill., native of Europe, and sometimes cultivated for the use of the clothiers, who employ the heads with their hard, recurved bracts, to raise the nap upon woolen cloth.

Dr. Pile had repeated Prof. Goddefroy's test for glycerin (*see* "Amer. Journ. Pharm.," 1875, p. 40) with that of Price, Bower and Hartman, Laist & Co. The residues in each case were shown, and seem to be very nearly alike.

It was stated in answer to inquiry that Trommer's test, with the addition of tartaric acid, was a ready test for glucose in glycerin.

Mr. Blair read the following letter in reference to a subject mentioned at the preceding meeting:

PHILADELPHIA, December 21st, 1874.

MESSRS. H. C. BLAIR'S SONS, cor. Eighth and Walnut streets, City:

Gentlemen,—I received your favor of the 17th instant at Washington, and brought the matter to the attention of Mr. Kimball, who has charge of this Department, and to whom such matters are generally referred by the Commissioner of Internal Revenue. He read the letter carefully, and seemed to be in entire accord with you. He stated to me that the wishes of the Department will be fully met if the Deputy Collectors confine their examination to goods exposed for consumption or sale, and that it was not the desire of the Department that they should extend their investigations into upper rooms, cellars, etc., as that would be an unnecessary interference, in many cases, with the domestic arrangements of families, it frequently happening that druggists reside in the same building as that in which they do business.

He observed, further, that in his opinion the officers would be fully justified in extending their investigations to the small room that is usually found in the rear of most drug stores. I told Mr. Kimball that if the officers should go further than this, it would, in my opinion, be in violation of the rights guaranteed to American citizens by one of the early Amendments to the Constitution of the United States, which guarantees immunity from search, except where there are good grounds for supposing that something is wrong; and even in such cases it is necessary to have a warrant.

I have no hesitation whatever in saying that I consider the efforts made by officers to go further than the examination of such goods as are exposed for consumption or sale, as contrary to the wishes of the Department: my own personal view is, that it is contrary to the Constitution of the United States.

I shall probably embody the facts of this case in the next issue of the Drug Exchange Circular, but you can state to the officers, without hesitation, that Mr. Kimball very clearly and definitely stated the wishes of the Department to be limited to the examination of goods exposed for consumption or sale in the stores of druggists and in the small room in the rear, but that the officers were not expected to go into the upper parts of the building, or into the cellar, where goods were simply stored.

Yours truly, A. H. JONES.

A paper by George W. Kennedy, on suppositories, was read (*see* page 55). Mr. Mattison objected to the opinion therein expressed of manufactured goods, as entirely too general; his experience with suppositories is in favor of moulds. M. Boring had used the process described, and found a piece of linen advantageous in avoiding contact with the hands. Prof. Remington had made suppositories by hand, and failed to see matters in the same light as the writer of the paper, the suppositories being brittle. Mr. Shinn urged that small lumps of cacao butter could be avoided only with difficulty. To prevent this, Mr. Lemberger called attention to grating the oil of theobroma previous to admixture with the other ingredients. Wm. McIntyre believed that the process possessed sufficient merit to warrant attention to it. It was safe to say that in cases where the activity will admit of nothing but positive equal distribution, or the call is very urgent, it is possible to prepare, in from five to ten minutes, a few suppositories in condition for immediate use, which, for shape and utility will be in keeping with all requirements. By proper attention to all the details of this process, and by inserting the cones prepared with the fingers

and a spatula, while yet plastic, into a hinged mould, which has previously been well cleaned and dusted with powdered arrow-root or lycopodium, and pressing them well home, after a few moments they can be readily detached from the opened mould by pressure upon the end of each suppository.

Dr. A. W. Miller read an interestting paper on the orthography of asa fœtida (*see* page 49); after some remarks by Prof. Maisch in approval of *asa* in place of *assa*, the papers read were referred for publication.

Adjourned. WILLIAM MCINTYRE, *Registrar.*

PHARMACEUTICAL COLLEGES AND ASSOCIATIONS.

THE NEW YORK COLLEGE OF PHARMACY appointed a Committee consisting of Messrs. William Hegeman, Daniel C. Robbins and William Neergaard, to prepare resolutions relating to the late John Milhau; the following was submitted and adopted:

"WHEREAS, It has pleased an all-wise Providence to remove by death our late associate and friend John Milhau, therefore,

"*Resolved*, That the College of Pharmacy, of which he was so long an officer and Trustee, loses in him one of its best-known, most able and respected friends, and his associates in the Faculty one of their oldest and most honored members.

"*Resolved*, That while we lament his death we recall with satisfaction his long, laborious and useful life, his devotion to the best interests of his profession, his numberless acts of charity and philanthropy, and the warm affection and earnest respect which he ever inspired among those who were brought in any relations with him. Full of years and of honors, his loss leaves a vacancy in our ranks which cannot be filled.

"*Resolved*, That we tender to the family of the deceased our sincere condolence upon the sad bereavement which has removed from the domestic circle its beloved head."

CINCINNATI COLLEGE OF PHARMACY.—At the Annual Meeting, held Tuesday, January 12th, the following officers were elected for the ensuing year: President, E. S. Wayne; Recording Secretary, Joseph H. Feemster; Corresponding Secretary, Charles H. Van Slyck; Treasurer, W. H. Negley; Trustees, J. F. Judge, F. L. Eaton, A. W. Bain, A. Schaefer.

PHARMACEUTICAL SOCIETY OF PARIS.—M. Planchon presided at the Meeting held December 2d, at which M. Coulier was elected Vice-President and M. Fr. Wurtz, Secretary, for the year 1875.

M. Petit spoke on the sugar contained in grape-vine leaves, which was estimated by Fehling's solution, the results being controlled by fermentation and by the polariscope, both before and after inversion; it was thus found that the sugar consists in part of reducing and of non-reducing sugar, the latter, which has all the proper-

ties of cane-sugar, reaching occasionally three-fourths of the total quantity, which varies between 20 and 25 grams per kilogram of leaves. Earlier experiments induce M. Petit to the conclusion that, at the period of maturation, the reducing sugar of the melon is converted into the non-reducing kind, the same transformation taking place if the melon is detached before it is ripe.

M. Buignet called attention to his old researches on bananas, in the sugar of which considerable difference exists, depending upon its production under the action of the vegetative forces, or removed from their influence; in the latter case, cane-sugar is not formed in bananas, but in its place invert sugar appears.

M. F. Boudet read an abstract of his report made to the Board of Health, October 23d, 1874, relating to the alteration of the Seine water caused by the drainage of Paris, and to the purification of the latter.

The Society voted a contribution of 250 francs, for the proposed monument to Scheele.

EDITORIAL DEPARTMENT.

THE PHILADELPHIA PHARMACY LAW, as we informed our readers in our last issue, we expected to be destined to be contested in regard to its constitutionality and its supposed oppressive provisions. A second meeting of the opponents was called, through the daily papers, for January 5th, at No. 349 N. Fourth street. At this meeting we had hoped to hear of the promised resolutions, explaining all the shortcomings of the Pharmacy Act, and to learn the steps to be taken to sweep this obnoxious law from the statute book. We are sorry to say, however, that for some time after the appointed hour, as we are informed by the "Public Record," only three persons responded. It seems, then, that the first meeting must have been largely composed of persons who went there out of curiosity, or that the malcontents must have come to different conclusions from the prominent speakers.

The number of the derelict pharmacists fined by Alderman Beitler, December 8th, was three; the attendants at this second opposition meeting was exactly three, including the malcontent physicians. How many of the latter were included in the former three?

We are sorry that these gentlemen will apparently be deprived of the pleasure of vindicating their supposed rights; we believe that the law contains *certain provisions* which are not as good as they might be. But the fault, as we see it, is not in its *intentions*, but simply in its *expressions*, which, to some, appear to be not definite enough. If that is what the opponents object to, we desire to say that we agree with them entirely, and are ready to join in any movement which promises to result in unmistakable clearness, greater stringency, and hence greater benefit and security to the people.

THE STAMP TAX ON MEDICINES.—During the last seventeen months we have endeavored to keep our readers informed on the steps taken to secure a modification of the Internal Revenue Law, with the view of preventing a recurrence of conflicting decisions in regard to what medicines require to be stamped. On page 351 we

printed a section of a bill pending before Congress, which we think will be acquiesced in by all concerned. Unfortunately that clause was incorporated into a bill referring to tariff matters as well as to internal revenue, and some of its provisions appear to be of such a nature as to prevent, perhaps, the final enactment of this law, through which pharmacists and druggists would be freed from some of the annoyances to which they had been lately subjected, and from some arbitrary decisions rendered by the Internal Revenue Bureau, which, it seems, now begins to fear that it would lose considerably by such a provision. In view of this possibility, the suggestion of the Philadelphia Drug Exchange appears to be very appropriate—to induce Congress to have the bill considered for final action; omitting, if its passage cannot be secured in any other way, the disputed clauses now under consideration by the Conference Committee appointed by both Houses*.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

Die chemische Werthbestimmung einiger stark wirkender Droguen und der aus ihnen angefertigten Arzneimischungen, von Dr. G. Dragendorff, Professor der Pharmacie an der Universität Dorpat. St. Petersburg: 1874. Kais. Hofbuchhandlung. 8vo, pp. 126. Price: in paper, 1 thaler.

The Chemical Valuation of some Powerful Drugs, and of the Medicinal Preparations made from them.

This little volume, which is dedicated to the Fourth International Pharmaceutical Congress, is a very important publication, which originated in the desire of the author to find or examine analytical methods for estimating the true value of certain drugs and their preparations, and, more in particular, to determine their reliability and to search for the sources of errors and for the means of avoiding them.

The drugs selected for this work are aconite, aconitum ferox, belladonna, stramonium, hyoscyamus, ipecac, conium, tobacco, guarana, tea and coffee, nux vomica and Ignatius seed, colchicum, opium, poppy, celandine, cantharides and aloes.

It will be observed that most of these articles owe their efficacy to one or more alkaloids, for the quantitative determination of which, the iodohydrargyrate of potassium solution, as first proposed by the late Prof. F. F. Mayer, is used. Of great interest are the determinations of the actual strength of many galenical preparations made by the various European and the United States Pharmacopœias. The necessity of separating, particularly from complex preparations, many principles, the presence of which would interfere with the correct determination of actual strength, rendered a large number of experiments necessary, the results of which are given in the directions for isolating as much as possible and requisite, the active constituent. Thus, without going too much into details, the work has been rendered exceedingly valuable as a manual for use in the analysis of the substances mentioned above; while those seeking further information, will find many references to other publications.

We earnestly recommend this work, which the author promises to continue at some future time; the notion, which is still prevalent in some quarters, that the

* Since the above was in type, the "little tariff bill" has passed both Houses of Congress, and now awaits the signature of the President.

value of a drug is in direct proportion to the amount of extract obtainable, can have no better commentary or find a more thorough refutation.

Therapeutics and Materia Medica. A Systematic Treatise on the Action and Use of Medicinal Agents, including their Description and History. By Alfred Stillé, M. D., Professor of the Theory and Practice of Medicine, and of Clinical Medicine, in the University of Pennsylvania, &c. Fourth edition, thoroughly revised and enlarged. In two volumes. Philadelphia: Henry C. Lea, 1874. 8vo, 1944 pages. Price, in cloth, $10; in leather, $12.

The rapid exhaustion of three editions, and the universal favor with which the work has been received by the medical profession, are sufficient proof of its excellence as a repertory of practical and useful information for the physician. The edition now before us fully sustains this verdict, as the work has been carefully revised, and in some portions rewritten, bringing it up to the present time by the admission of chloral and croton-chloral, nitrite of amyl, bichloride of methylene, methylic ether, lithium compounds, gelsemium, and other remedies, among which the author has even not neglected to sketch the brief career of that short-lived medical wonder cundurango, which will forever retain a well-deserved celebrity for the unusual amount of fraudulent misrepresentation attending the attempt to introduce it into medical practice.

It has evidently not been the author's aim to discuss the action and remedial employment of *every* drug mentioned in the Pharmacopœia; indeed, we observe accounts of a number of medicinal agents not mentioned in the Pharmacopœia; many of the secondary list and a few of the primary list (Pareira) have been omitted, likewise pepsin, the manufacture of which, in a reliable and uniform condition, has made such marked progress within the last few years.

Intended as a work of practical utility to the medical practitioner, and as a repository of the observations of others at the bedside mainly, the pharmacognostical, chemical and pharmaceutical portions have been but briefly treated, insufficient to be of much usefulness to the pharmacist, but sufficient in most cases to suggest to the practising physician suitable forms for administration and combination.

Proceedings of the American Pharmaceutical Association at the Twenty-second Annual Meeting, held in Louisville, Ky, September, 1874. Also the Constitution and Roll of Members. Philadelphia: Sherman & Co., Printers. 1875. 8vo, pp. 655. Price in paper, $5; bound in cloth, $5.50.

Although one of the largest volumes published by the Association, it will be earlier in the hands of the members than the preceding ones. This is in a great measure due to the different arrangement now adopted, and the main features of which are, that the Report on the Progress of Pharmacy during the preceding year is printed first, followed by the reports of committees, the volunteer and special reports, and finally by the minutes of the last meeting. If this new arrangement proves as satisfactory as is hoped, it will very materially shorten the time of publication, and if no unforseen accidents happen, the annual volume may hereafter be expected to reach the members by about January 1st following the meeting.

In the October number, 1874, we have reported the transactions at this meeting in full, and hope to be enabled to lay before our readers, in a future number, an ab-

stract of the papers, several of which are of more than ephemerous value. It should be mentioned yet, that this volume is embellished with a number of well-executed woodcuts, illustrating chiefly several new apparatus and some articles of Materia Medica; also, with the excellent likeness of the late Professor Procter, first published in our November number.

The different volumes of the "Proceedings" contain such a vast amount of useful, practical and scientific information, and are sold at a mere nominal price, so that no progressive pharmacist should be without them. They may be obtained singly or in complete sets by addressing Prof. J. M. Maisch, 145 North Tenth street, Philadelphia.

Accidents, Emergencies and Poisons. Distributed through the Howard Hospital and Infirmary for Incurables, 1518 and 1520 Lombard street, Philadelphia.

This pamphlet of 125 pages is intended to instruct in the management of accidents, emergencies and poisons until the arrival of skilled assistance. Intended for the general public, the directions given here are simple, easily understood and very practical, and for this reason we regard it of very great value to the pharmacist, who is usually applid to in such cases if the services of a physician cannot be at once obtained. It is for sale by James Hammond, 1224 Chestnut street, Philadelphia.

Bulletin of the Bussey Institution (Jamaica Plain, Boston). Part III. 1875. Cambridge: John Wilson & Son. 8vo.

We have reported on Part I of this publication on page 496 of our last volume, and now mention the papers published in the third part, the second not having been received: On the valuation of the soluble phosphoric acid in superphosphate of lime; On the average amounts of potash and phosphoric acid contained in wood-ashes from household fires; and On the importance as plant-food of the nitrogen in vegetable mould. These three essays are from the pen of Professor Frank H. Storer.

Contributions to the Annals of Medical Progress and Medical Education in the United States before and during the War of Independence. By Joseph M. Toner, M. D. Washington: Government Printing Office, 1874. 8vo, pp. 118.

The title fully explains the aim of this pamphlet, of giving biographical and historical notes concerning the medical profession during the Colonial period of our country's history; it is intended to form a part of a complete representation of the rise, progress and present condition of the system of education in the United States.

OBITUARIES.

JOHN MILHAU died at his residence, in the city of New York, December 23d, 1874, at 2 A. M., in the eightieth year of his age, having been born in Baltimore, Md., in the year 1795. His parents were of French origin, and had fled to Maryland, having lost their entire fortune in the great French Revolution. He was edu-

cated at the Emmittsburg Seminary, and commenced business at the early age of eighteen, but soon after lost, by fire, his entire stock and fixtures, upon which there was no insurance. Aided by some friends, he soon re-established himself, and by his undaunted energy, industry and economy, he was enabled to repay the advances and, in 1823, to retire from business with what was then considered a competency.

Having married, in 1825, Miss Guillou, of Philadelphia, who was likewise the offspring of French refugees, he visited Europe, in 1829, for the third time, and studied pharmacy and chemistry under the celebrated teachers at Paris. After his return to this country he visited the West, extending his tour to St. Louis and New Orleans, and finally settled at New York city, where, in the fall of 1830, he opened a drug store on the the northeast corner of Maiden Lane and Broadway, where subsequently the Howard Hotel was located. In the following year, he moved opposite to No. 183 Broadway, which property he afterwards purchased, and where the business, established by him, is still carried on by his sons. The many improvements he made to the building and store were all of a substantial character, without exhibiting a craving for what may be called the drawing-room style of some pharmacies of the present time. He placed in his store the first marble-floor ever laid in New York city, outside of the public buildings, and subsequently added two stories, an iron front and other improvements and conveniences. In 1869, he retired from active business life, having lost the use of his right arm by a fall, and lived in retirement to within a few weeks of his golden wedding, which would have occurred on the tenth of Frebruary; his wife, the faithful companion during half a century, and four sons surviving him.

Mr. Milhau, although not a writer on pharmaceutical matters, has done valuable and lasting service to the cause of pharmacy in this country. On settling in New York, he at once identified himself with the recently established College of Pharmacy, and was one of the charter-members in 1831; he served for a long period as Vice-President and President, and retained a lively interest in its welfare. The condition of the drug-market attracted his attention at an early date, and the fact that inferior and worthless drugs were abundant in this country, being often manufactured in Europe especially for the American market, suggested to him the idea of excluding this evil, and the passage of the U. S. drug law of 1848 is mainly due to his persistent and conscientious efforts.

The subject of uniform and correct standards for the guidance of the special examiners of drugs and medicines, appointed under that law, induced the New York College of Pharmacy to call a convention of delegates of the colleges of pharmacy in the United States, which met in that city, October 15th, 1851, and one of the fruits of which was the organization of the American Pharmaceutical Association in Philadelphia, in October, 1852. Mr. Milhau joined the Association in 1855; served as its first Vice-President for the term 1862–63, and as President, in 1867–68, in which latter capacity he presented, at the meeting of 1868, an address which is full of sound observation and good advice, embodying some of the views matured during a long life of activity and usefulness.

Highly respected as a citizen, Mr. Milhau acted for many years as one of the Trustees of the Emigrant Industrial Savings Bank and of the Bowery Savings Bank, and in the memorable litigation which prevented the speculative companies from en-

joying the fruits of extraordinary charters, procured by questionable means, for laying the tracks in Broadway, his name was placed at the head of the list as the oldest property holder on that thoroughfare represented in the case.

Accustomed to do his full duty, he expected the same of others; kind and genial in disposition, his bearing was always courteous and dignified; sociable and friendly in his inclinations, those in whom he felt an interest were always welcome to him; prompt, reliable and judicious in his business relations, he possessed the qualities insuring success.

Professor Carlos Murray died at Buenos Ayres, July 17th, 1874. The deceased was one of the founders of the "Asociacion Farmaceutico Bonaerense," in 1856, which, after the incorporation of Buenos Ayres into the Argentine Republic, was changed into the Argentine National Pharmaceutical Society. Since the publication of the "Revista Farmaceutica," in 1858, he was one, and, for a long period, its sole editor. In 1861, he was elected Secretary, and, in 1864, President of the Pharmaceutical Society, to which latter position he was re-elected several times.

In 1863, he presented a project for the establishment of a School of Pharmacy. The Society accepted the idea, but the Government, for economical reasons, unable to carry this project out, ordered the foundation of the School, in connection with the School of Medicine, by establishing two new chairs of Pharmacology and Natural History. The deceased was a member of the Committee which perfected this plan with the Rectorate of the University, and, in 1864, he was selected to fill the chair of Pharmacology, which he occupied until his death. Two years later, he published his "Tratado de Farmacia y Farmacognosia," which was noticed in this Journal in 1866, page 412.

Carlos Murray was at the head of a successful pharmaceutical establishment, and notwithstanding his numerous duties pointed out above, he wrote a number of valuable papers, which were published in the "Revista Farmaceutica," served as Secretary of the Palæontological Society of Buenos Ayres, and maintained a scientific correspondence with ten or twelve American and European societies with which he was connected as honorary member.

By his death, the cause of pharmacy in the Argentine Republic has lost one of its most active and energetic promoters. The deceased was an honorary member of the Philadelphia College of Pharmacy.

The successor of Carlos Murray in the chair of Pharmacology is one of his former pupils, D. Martin Spuch.

Dr. Leonhard Elsner died at Postdam, Germany, November 29th, in his 73d year. Originally a pharmacist, he studied chemistry, and was, in 1834, selected Professor to the Polytechnic School at Berlin, and, in 1852, chemist at the royal porcelain factory. Besides a number of essays on chemical subjects, he published a guide for qualitative analysis, and, since 1845, the widely known annual "Chemisch-technische Mittheilungen."

Correction.—"American Journal of Pharmacy," 1874, page 549, thirteenth line from top, read *ten* (physicians) instead of *two*.